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Course Delivery Methods and Perceptions of Self-Efficacy
of Pre-Service Teachers

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Curriculum and Instruction

by

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Abstract

Conflicting research results regarding outcomes for distance versus face-to-face course delivery methods, as well as a lack of that research, presents a need for further research into distance education. This mixed methods study adds to the existing literature on distance education, and will provide specific research exploring pre-service teachers' perceptions of their self efficacy in the context of teacher education. This study is descriptive in nature, and has a dual purpose: to add to the existing knowledge base regarding distance education models and traditional face-to-face delivery models in teacher education, and to inform program designers about the impact of these types of delivery models on pre-service teachers' perceptions of personal self efficacy. It is the intent of this research to give voice to teacher education students directly related to their experiences, and to contribute to the discourse on distance education, especially in the context of teacher education programs. This study addresses three research questions: what are the perceptions of pre-service teachers regarding their sense of self-efficacy in the context of field experiences?; what are the similarities and dissimilarities in pre-service teachers' perceptions of self-efficacy as a result of face-to-face delivery methods versus on-line delivery methods? ; and what are the perceptions of faculty regarding the effectiveness of on-line versus face-to-face delivery methods in developing self-efficacy in pre-service teachers?

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I would like to acknowledge the assistance of my committee in this process, especially Dr. Kathleen Collins, whose unending patience and support allowed me to complete this degree.

Dedication

This dissertation is dedicated to three individuals who have been invaluable in providing the personal support that has allowed me to persevere in this endeavor. First, to my husband, who has always allowed me the freedom to pursue my dreams. Second, to Paula, who had the uncanny ability to know when to encourage and when to kick. Lastly, to my mother, who never got the opportunity to achieve what I have. I hope I have made them all proud.

Table of Contents

I. Introduction.....	1
A. Statement of the Problem.....	4
B. Conceptual and Methodological Frameworks.....	6
C. Purpose of the Study.....	7
D. Research Questions.....	8
E. Significance of the Study.....	8
F. Definition of Terms.....	9
II. Literature Review.....	10
A. Literature Pertaining to Distance Learning.....	10
B. Literature Pertaining to Effective Teaching.....	21
C. Literature Pertaining to Self-Efficacy and Self-Regulated Learning.....	26
D. Literature Pertaining to Zimmerman’s Concept of Self-Regulated Skill Development.....	29
E. Literature Pertaining to Faculty Perceptions.....	36
F. Summary of Key Points.....	41
III. Method.....	44
A. Zimmerman’s Model Aligned to Pre-Service Teachers’ Field Experiences.....	45
B. Conceptual Framework – The 13 Step Model.....	47
C. Formulation Stage: Goal, Objective and Rationale.....	47
D. Research Design.....	49
E. Sampling Design.....	49
F. Data Collection Process.....	54
G. Data Analysis.....	56
H. Analysis Process.....	61

I. Data Validation.....	62
IV. Analysis.....	66
A. Demographics.....	66
B. Pre-Service Teachers – Quantitative Results – Questionnaire.....	69
C. Pre-Service Teachers – Qualitative Results – Interviews.....	72
D. Zimmerman’s Four Step Model for Building Self-Efficacy.....	75
E. Additional Emergent Themes/Other Comments.....	95
F. Summary of Key Points – Pre-Service Teachers.....	102
G. Faculty – Qualitative Results – Interviews.....	105
H. Summary of Key Points – Faculty.....	108
I. Validation Process.....	109
V. Discussion.....	112
A. Discussion of Findings.....	116
B. Validation.....	124
C. Limitations.....	126
D. Suggestions for Further Research.....	128
E. Conclusion.....	131
References.....	133

List of Tables and Figures

Figure 1, Bandura's Model of Reciprocal Interactions.....	27
Figure 2, Analysis Process.....	60
Figure 3, Validation Procedure Flow Chart.....	109
Figure 4, Mixed Method Research Model.....	148
Table 1, Questionnaire Responses Received by Program and Gender.....	50
Table 2, Selection by Program and Gender for Interviews.....	52
Table 3, Sample Matrix Design for Interview.....	58
Table 4, Matrix for Recording Coding Results.....	59
Table 5, Steps in Typological Analysis.....	61
Table 6, Steps in Validation Process.....	64
Table 7, Descriptive Statistics and TSES Score Ranges, Phase 1.....	70
Table 8, TSES Scores by TSES Cluster and Program.....	70
Table 9, Reliability Coefficients for TSES.....	72
Table 10, Sample Coding Results Matrix.....	73
Appendices	
Appendix A, TSES.....	138
Appendix B, Additional Demographic Questions.....	142
Appendix C, Consent Letters for Questionnaire and Interview.....	143
Appendix D, IRB Approval and Extension.....	146
Time Line.....	149

CHAPTER I

INTRODUCTION

Background of the study

According to the Education Department's National Study of Postsecondary Faculty (National Study of Postsecondary Faculty, 2012), more than fifty percent of faculty in post secondary institutions are 50 years of age or older (n.a., 2012). When they were infants and toddlers, Rachel Carson's Silent Spring had just been published; John F. Kennedy made his speech challenging America to reach the moon within the decade, and the cartoon series The Jetsons premiered with a robot maid and "cars" that traveled under computer control. Women were allowed to pursue higher education in Afghanistan, segregation was ending as a result of federal mandate, and Dr. John Mauchly invented a suitcase size computer (Taylor, 2012). At the time of their births, distance education already existed – specifically, in 1852, the first "distance education" system was offered through the U.S. Post Office, as correspondence courses. The first course offered was a shorthand course offered through the Pittman Shorthand training program (Casey, 2008). Instructional radio began in 1921, and television as an instructional medium made its debut in 1934 at the University of Iowa.

It is this population, which has sometimes been referred to as the generation of "digital immigrants," who are making decisions about whether, how, and in what programs, distance learning is to be employed in undergraduate and postgraduate programs at colleges and universities around the world. The advent of computer-based instruction found its start in the 1980's, and in 1989 the University of Phoenix emerged on the education for-profit scene, offering a variety of computer-based courses, continuing education programs, and on-line undergraduate, postgraduate, and doctoral degrees. At this time 50% of post secondary faculty

were approaching their third decade of life (National Study of Postsecondary Faculty, 2012). In 2005 WebCT and Blackboard merged and became the leading providers of software applications to the education industry (Casey, 2008).

It appears that educators have conceded, reluctantly, that distance education is here to stay (Casey, 2008). The legitimacy of on-line instructional methods has been established by the growth of the technological infrastructure required to deliver on-line instruction, acceptance by accrediting bodies, and acceptance by highly respected institutions of higher learning (Casey, 2008). However, questions as to the efficacy of distance education in terms of student outcomes persist. It is the intent of this study to investigate distance education in undergraduate teacher education programs.

Proponents of Distance Education

Proponents of distance education claim that it is more “discursive, reflexive, and democratic” (Prewitt, 1998). Distance education allows potential students from geographically separated areas to obtain undergraduate and graduate degrees; additionally, socio-economic status becomes less of an obstacle since students are able to live at home rather than in dormitories on campus (Casey, 2008).

Nagar (2010) identifies strengths of distance education dependent upon point of view of the student, point of view of the teacher, the use of technology, and the on-line environment. For students, on-line education allows greater flexibility and responsibility in the learning environment, and allows introverted students to participate in discussions. Social status, ethnicity, gender, age and physical appearance are not visible in the on-line environment (Nagar, 2010). Teachers also benefit from greater flexibility, along with greater accessibility to learning resources that lead to richer curriculum.

Nagar (2010) indicates that the accessibility and flexibility of on-line education, as well as low cost, are also positive aspects of distance education. Unlimited resources through the internet and the possibility of using various types of media (wikis, blogs, on-line discussion, and audio and video conferencing) provide excellent resources for various types of instruction.

Prewitt (1998) cites additional benefits, including the ability of on-line education to provide students with a variety of specialized information. On-line course delivery also, according to Prewitt, may provide students with more control and participation, through on-line discussion and exchange of information. He cites three ways in which the relationship of students are accommodated: learners have increased control over how learning takes place; computer-based courses promote collaborative learning; and students become “actively engaged with rhetoric, debate, and critical thinking” (Prewitt, 1998, p. 191).

Opponents of Distance Education

While Nagar (2010) cites advantages of distance education, numerous weaknesses are also noted. From the point of view of the student, distance education may require more work than face to face education; it also requires more developed time management skills and is not always a good alternative for highly dependent learners. Well developed writing skills are also required for distance education, which may present problems for foreign students or those who do not possess adequate writing skills. Teachers require training in different types of instruction, and must possess excellent writing and language skills; they must be “great communicators” (Nagar, 2010, p. 331).

Access to technology in rural and lower socioeconomic locations may present barriers to the ability of students to adequately participate in on-line environments. Problems with the technology itself, such as servers being down, individual computer problems, and internet

connection difficulties, slow down the learning process. Curriculum must be modified for distance education; teaching methods are different than those used in face-to-face instruction. Nagar (2010) also states that class size greater than 20 is detrimental to student comfort and effectiveness.

Other disadvantages that have been noted have been lack of social cue communication, fewer opportunities to demonstrate learning, lack of effective immediate feedback, and lack of resources that are not available on-line (Brown, 2003). Nagar (2010) also states that not all courses lend themselves to the on-line format.

Additionally, lack of research in particular content and degree areas makes the evaluation of the quality of distance learning questionable in some cases. Picciano, Seaman and Allen (2010) cite a 2009 study by the U.S. Department of Education; the U.S.D.E. conducted a meta-analysis of comparison studies of student outcomes in on-line, face-to-face, and blended courses, and found that blended courses had better outcomes than either purely on-line or face-to-face courses. Warren and Holloman (2005) found no significant differences between student outcomes in face-to-face and on-line sections of the same course. Puzziferro and Shelton (2009) question whether findings of “no significant difference” may be because there is no significant difference; they state that there needs to be a re-definition of on-line learning assessment rather than a reliance on face-to-face measurements of student outcomes. Faculty view on-line learning as inferior or somewhat inferior to face-to-face learning (Picciano et al., 2010). There is research that appears to indicate that differences in outcomes for students in face to face versus on-line courses are not significantly different; however, research within particular programs of study, or specific degree programs, is lacking.

Statement of the problem

Conflicting research results regarding outcomes for distance versus face-to-face course delivery methods, as well as a lack of that research, presents a need for further research into distance education. A study by the U.S. Department of Education identified blended courses as superior to either distance or face-to-face delivery methods (Picciano et al., 2010). Warren and Holloman (2005) found no significant differences in outcomes based on course delivery methods. Only one dissertation was located during research for this proposal that related directly to teacher education programs and distance education. To conduct the search for literature pertaining to distance learning, self-efficacy, and effective teaching, the following electronic search engines were accessed: Dissertations and Theses (vendor, ProQuest); Education Research Complete (vendor, EBSCOhost); Education Source (vendor, EBSCOhost); Academic Search Complete (vendor, EBSCOhost); ERIC (vendors FirstSearch, ProQuest, and EBSCOhost); WorldCat Dissertations and Theses (vendor, FirstSearch). To locate articles on distance learning, the following descriptors were used: distance learning; distance education; online (on-line) learning; online (on-line) education; distance teacher education; online (on-line) teacher education; pre-service teacher education; pre-service teacher distance education; pre-service teacher online (on-line) education. To locate articles on self-efficacy, the following descriptors were used: pre-service teacher self-efficacy (self efficacy); teacher self-efficacy (self efficacy); self-efficacy (self efficacy); Bandura self-efficacy (Bandura self efficacy); social learning theory; Bandura social learning theory. To locate articles on effective teaching, the following descriptors were used: effective teaching; teaching standards; effective teaching standards; teacher (teaching) evaluation; teacher effectiveness. This research was conducted during the period August 2012 through October 2015.

It is the intent of this research to give voice to teacher education students directly related to their experiences, and to contribute to the discourse on distance education, especially in the context of teacher education programs.

Conceptual and Methodological Frameworks

Bandura's social cognitive theory proposes that people are motivated through beliefs in self-efficacy and outcome expectations (Erlach and Russ-Eft, 2011). Self-efficacy beliefs relate to personal confidence in taking part in activities that contribute toward progress in meeting goals. Bandura identifies four learning sources that build self-efficacy: observing models, gaining experience of doing, receiving encouragement, and reducing anxiety (Erlach & Russ-Eft, 2011). Incorporating these learning sources into teaching practice facilitates the learning experience of the student and increased student level of self-efficacy (Erlach & Russ-Eft, 2011).

Bandura's theory states that self-efficacy is built over time through self-regulated skill development. Four levels of skill development have been identified by Zimmerman (Zimmerman and Kitsantas, 1996). In level 1, observational learning from a proficient model builds student knowledge and understanding. Level 2 is based on this foundation of vicarious experience, wherein the student practices the modeled behavior under close supervision. Immediate feedback and correction provide the student with positive encouragement. In level 3, students continue skill mastery, using self-evaluative feedback based on internalized standards; the student reflects and evaluates personal performance. During level 4, the student applies knowledge and skills independently across varied and changing situations (Erlach et al., 2011). Purposefully integrating these four levels for building self-efficacy encourages students to demonstrate increased levels of self-efficacy.

Bandura's social cognitive theory is appropriate for designing and interpreting data collected in this study because his levels of building self-efficacy are directly related to the process of learning to teach through experience. This study will address whether pre-service teachers have developed a sense of self-efficacy as a result of their experiences with various course delivery methods, including face-to-face and on-line. The ability of pre-service teachers to develop self-efficacy, according to Bandura's theory, is dependent upon having proficient models, behavior practice, and immediate feedback and supervision. The questionnaire used in this study particularly addresses perceptions of efficacy in student engagement, instructional planning, and classroom management.

Methodological approach for this research will be a mixed method research framework, developed by Collins, Onwuegbuzie, and Sutton (2006). This framework comprises 13 steps of the mixed methods research process, and these steps are organized into three distinct phases. The first phase is the formulation stage, which is linear in nature; the first five steps are to determine the goal of the study, which leads to formulation of research objectives and determining the research mixing rationale; from this, the mixing purpose(s) and research questions are addressed. The second phase, the planning stage, consists of selecting the sampling design and the research design; these two steps are interactive because each effects the other. The last phase, the implementation stage, are interactive and cyclical. This stage includes data collection, analysis, validation, and interpretation. In this study, the inclusion of both quantitative and qualitative data enables the researcher to address both relationships between specific variables as well as answer "how" and "why" questions. The model is depicted in Figure 2.

Purpose of the study

This study will add to the existing literature on distance education, and will provide specific research exploring pre-service teachers' perceptions of self efficacy in the context of teacher education. This study will be descriptive in nature, and has a dual purpose: to add to the existing knowledge base regarding distance education models and traditional face-to-face delivery models in teacher education, and to inform program designers about the impact of these types of delivery models on pre-service teachers' perceptions of self efficacy.

Research Questions

This study addresses three research questions: what are the perceptions of pre-service teachers regarding their sense of self-efficacy in the context of field experiences?; what are the similarities and dissimilarities in pre-service teachers' perceptions of self-efficacy as a result of face-to-face delivery methods versus on-line delivery methods? ; and what are the perceptions of faculty regarding the effectiveness of on-line versus face-to-face delivery methods in developing self-efficacy in pre-service teachers?

Significance of the study

Good teachers are needed in order to provide quality educational experiences to this nation's young people. Programs that prepare teachers should ensure that regardless of the style of course delivery or the length of the program, all beginning teachers should possess the skills and dispositions required to create positive learning environments for their students, and that those beginning teachers have a positive sense of self-efficacy that enables them to make the decisions about student learning required in the classroom. It is anticipated that this study contributes to the body of knowledge related to teacher education and distance course delivery so that institutions of higher learning are more able to make informed decisions regarding program development.

Definition of terms

For the purposes of this study, the following definitions were utilized:

Distance education: course delivery where the student and faculty are spacially separated and delivery is accomplished by means of technology. Student and faculty may also be separated by time (non-synchronous delivery and viewing of content).

Teacher education program: a course of education that leads to teacher licensure.

Pre-service teacher: an individual enrolled in a teacher education program who has not yet completed coursework necessary for licensure.

Student: an individual enrolled in a post-secondary learning institution who is pursuing a two year or four year degree (regardless of content area), or an individual enrolled in the public schools.

Effective teaching: those skills and dispositions identified by InTASC (Council of Chief State School Officers, 2010).

Self-efficacy: Self-efficacy beliefs relate to personal confidence in taking part in activities that contribute toward progress in meeting goals (Erlich et al., 2011).

CHAPTER II

LITERATURE REVIEW

Literature search process

To conduct the search for literature pertaining to distance learning, self-efficacy, and effective teaching, the following electronic search engines were accessed: Dissertations and Theses (vendor, ProQuest); Education Research Complete (vendor, EBSCOhost); Education Source (vendor, EBSCOhost); Academic Search Complete (vendor, EBSCOhost); ERIC (vendors FirstSearch, ProQuest, and EBSCOhost); WorldCat Dissertations and Theses (vendor, FirstSearch). To locate articles on distance learning, the following descriptors were used: distance learning; distance education; online (on-line) learning; online (on-line) education; distance teacher education; online (on-line) teacher education; pre-service teacher education; pre-service teacher distance education; pre-service teacher online (on-line) education. To locate articles on self-efficacy, the following descriptors were used: pre-service teacher self-efficacy (self efficacy); teacher self-efficacy (self efficacy); self-efficacy (self efficacy); Bandura self-efficacy (Bandura self efficacy); social learning theory; Bandura social learning theory. To locate articles on effective teaching, the following descriptors were used: effective teaching; teaching standards; effective teaching standards; teacher (teaching) evaluation; teacher effectiveness. Boolean operator AND was used for all searches. This research was conducted during the period August 2012 through October 2015.

Literature pertaining to distance learning

Timothy Prewitt has identified two forces that gave impetus to the growth of distance learning: first, the need for more access to learning, especially for those in remote areas; and second, the development and availability of new delivery technologies (Prewitt, 1998). As early

as the late nineteenth century, “distance learning” was available from the Universities of Pennsylvania and Chicago through correspondence courses delivered by the U.S. Postal Service. Broadcast radio and educational television followed in the twentieth century. All of these systems intended to re-create the traditional classroom, while at the same time providing classes for more students in more places. The lack of interaction between students and instructors and students and students, the inability of instructors to teach their students effectively, and the inability to deliver instruction in such a way as to accommodate for individual learning styles resulted in a system which was considered a second rate alternative to the traditional classroom (Prewitt, 1998). In order for distance learning to provide effective instruction, it must equal rather than simulate inadequately the traditional face-to-face instructional method; it must do more than simply mimic the progression of content in face-to-face courses but must also provide for the means to create authentic learning experiences which will give students the opportunity to view accomplished modeling, practice, and obtain immediate feedback and correction.

Legitimacy for distance education has been gained as more and more universities provide distance education programs, including the University of Oxford, Princeton, Stanford, and Yale (Casey, 2008). Accreditation by the Higher Learning Commission and agencies such as the North Central Association of Colleges and Schools has given additional weight to that stamp of legitimacy. There remains, however, considerable disagreement as to the benefits of distance education as it relates to student outcomes.

Even though on-line instruction continues to gain acceptance, there are few research studies that compare the outcomes of distance instruction opposed to face-to-face instruction (Warren, 2005). Studies into both the effectiveness of on-line courses and whether or not objectives and course competencies were met, and studies that relate to student satisfaction with

perceived outcomes are scarce. A general search of professional journals and papers presented at learned forums yielded few results, even though a wide variety of search engines and terms were utilized. Investigating the information provided in search results indicates that many of the studies performed involved either specific degree programs, or graduate level programs. Numerous studies have looked at the effectiveness of distance learning as an acceptable method of course delivery; however, the most researched areas are centered around characteristics of distance learners, quality of courses, interaction, gender issues, and success in distance learning as measured by significant differences (Young, 2011). Significant differences in learning outcomes have dominated distance learning research, with the conclusion that outcomes do not differ between traditional instructional methods and distance learning; however, it is unclear whether conditions and assessment measures were the same in all situations (Young, 2011). There also appears to be a tendency to reach generalized conclusions based on study of specific groups.

Distance learning is not distributed evenly among college and university programs (Picciano et al., 2010). In the fall of 2008, there were approximately twenty-five percent of college/university students enrolled in on-line courses. Of those, over fifty percent were enrolled in two year institutions, and an additional thirty-seven percent were enrolled in graduate programs. Less than five percent were enrolled in baccalaureate programs. Estimates are that one third of business schools offer on-line programs (Estelami, 2012), exceeding the total for all other programs, including engineering, education and the humanities. The Digest of Education Statistics in 2013 (Digest of Education Statistics, 2013) indicated that of approximately 1,791,000 degrees awarded in on-line programs in 2011/2012, only 105,800 were awarded in education courses (.059%). This percentage has dropped since the 2001/2002 school year, when

.082% of on-line degrees were in education. This may account for the lack of literature pertaining to research on the effectiveness of on-line teacher education programs; the preponderance of on-line business education degrees awarded (20.4% in 2011/2012) may have resulted in a greater quantity of research in that particular field.. Numerous recent studies have appeared to indicate that achievement (as defined by test scores) is not significantly different in face-to-face and on-line courses. Studies also indicate that attrition is higher in on-line courses, due in part to the fact that students enrolled in on-line courses work at least twenty hours per week; sixty percent work at least twenty hours per week among those who attend community colleges (Picciano et al., 2010). When those students were asked what would help in completing a degree, financial aid for part-time students, more class offerings in the evenings, weekends, and summer, and decreased cost were the highest responses (81%, 78%, and 78% respectively). The second lowest response (57%) was to put more classes on-line (Picciano et al., 2010). The reality is that reductions in public funding for colleges and universities may result in those institutions more aggressively recruiting and hiring faculty based upon research and grant-writing abilities rather than teaching skills, and teaching responsibilities may be relegated to graduate assistants (Picciano et al., 2010). These facts call into question the advisability of creating on-line programs across the higher education curriculum without more research into the efficacy of such programs (Picciano et al., 2010).

Evaluating the new teacher evaluation standards (Council of Chief State School Officers, 2010), the question is whether distance learning based programs will provide the outcomes required. Specifically, there is a question whether or not on-line based programs allow pre-service teachers to learn skills within the areas of classroom management and quality of student-teacher interactions (Standard 3 of the InTASC standards), which have been documented to

result in higher student achievement (Youngs, 2011). Additionally, Standard 10 addresses ability to collaborate with both colleagues and parents, with research indicating that there are associations between teacher collaboration and student achievement.

Effective teacher educators must be clear about their mission, have appropriate background, be capable of bridging the gap between theory and practice, and must model what an accomplished teacher looks like (Aleccia, 2011). Aleccia's definition of effective modeling includes course design, alignment of assessment with course objectives, use of a variety of instructional strategies, use of technology tools, and being a reflective, collaborative practitioner. Conklin (Conklin, 2008) states that modeling is a "fundamental...pedagogy of teacher education" (Conklin, 2008, p. 660). Although modeling is considered a core pedagogy for teacher educators, there is a lack of research about whether or not this practice is being used in on-line courses.

Mary Burns (Burns, 2010) lists guidelines for all learners in every course and program, including teacher education. Among those are ensuring consistency of outcomes between delivery modes, effective student support through systematic interaction between teacher and learner, opportunities for peer interaction, and consistent collection and analysis of student feedback as a quality assurance mechanism (Burns, 2010). Assisting new teachers in integrating new ideas, techniques, and strategies requires the presence of an actual supervisor; by working together, teachers are able to adapt new skills to their particular classroom setting through collegial support of other teachers to help them critique and improve implementation (Burns, 2010). At the very least, Burns suggests that on-line courses offer at least a face-to-face orientation; in a study of five on-line professional development sites in the United States, only one site had a high completion rate, and it used face-to-face orientation which covered accessing

content, composing and replying to on-line posts and discussions, and basic troubleshooting (Burns, 2010).

A study by G. Sherrie Lewis (Lewis, 2010) with students at a business school was conducted in order to identify issues important to students associated with on-line or blended courses in management. The study was conducted at a state-funded, historically black university. In that study, forty three percent of students indicated that they wished they had had more interaction with other students, and fifty percent desired additional interaction with the instructor ($n=182$). Twenty seven percent indicated concerns about their own self-motivation, twelve percent felt they needed more guidance in order to be successful, and four percent were uneasy with the lack of immediate feedback. Overall, forty three percent of survey respondents indicated some form of concern about their ability to perform in on-line or blended courses.

While college enrollment in on-line courses has grown tremendously, there is little empirical research that analyzes quality and outcomes of on-line teacher education programs (Faulk, 2010). Faulk states that most research has focused on faculty acceptance; other existing research has been related to on-line instruction, but not specifically on-line teacher education. There is research that indicates that although higher education administrators place a high value on distance (on-line) education, seeing it as essential to the university, these same administrators prefer face-to-face instruction, and perceive the quality of on-line instruction to be inferior to that of traditional face-to-face instruction.

Allen and Seaman (2014) published results of a survey of chief academic officers in institutions of higher learning. Survey results were obtained in 2013; this survey report is the eleventh annual report in this series. One of the questions concerned whether chief academic officers considered outcomes in on-line courses similar to outcomes in face-to-face courses.

Among institutions with less than 3000 total enrollment, on-line course outcomes were rated as equivalent to those of face-to-face courses; larger institutions show increases of eight to ten percent in the proportion who report the learning outcomes for on-line instruction are inferior. This percentage is even greater among institutions that do not offer any on-line courses; 72 percent of academic officers believe on-line instruction is inferior (Allen and Seaman, 2014). Almost 69 percent of chief academic officers agreed with the statement that “Students need more discipline to succeed in an on-line course than in a face-to-face course” (Allen & Seaman, 2014, p.17).. 41 percent report that retention in on-line courses is a greater problem than for face-to-face courses. With over seven million students nationwide enrolled in at least one on-line course, whether or not chief academic officers are reporting their perceptions based on detailed, in-depth analysis of on-line offerings or simply opinions may not be direct measures of outcomes (Allen & Seaman, 2014).

Allan Young (Young, 2011) published results of his study on pre-service teachers’ perceptions of distance education in 2011. Research was conducted in 2003 and 2004; participants consisted of pre-service teachers in eight teacher education departments in the southeastern United States. Pre-service teachers were enrolled in teacher education programs, and in order to be part of the study had to have been enrolled in at least one distance course. Survey data was gathered that used Likert ratings for the categories of course structure, adequacy of student-teacher interactions, overall enjoyment and satisfaction, and adequacy of peer-to-peer interactions (Young, 2011). Pre-service teachers were assigned to groups based on class standing, with those in the first two years of their programs being designated as group 1 and those at the end of their programs designated as group 2. Data analysis compared the two groups across the four clusters addressed in the survey. Results indicated no significant differences in

the clusters of effectiveness of course structure or adequacy of student-teacher interactions; although group 1 demonstrated higher mean scores in both clusters, those results were not statistically significant suggesting that the difference could be due to chance (Young, 2011).

In the overall enjoyment and satisfaction cluster, pre-service teacher responses indicated that those in group 1 (beginning of program) were more satisfied with distance learning. This was particularly noted in the responses to questions regarding feeling a sense of accomplishment after completing a distance course and willingness to take additional distance courses if offered. Results indicated that pre-service teachers in the earlier phases of their programs were more positive about distance courses than those at the end of their programs relating to overall enjoyment and satisfaction (Young, 2011). Pre-service teachers in group 1 rated their opportunities to interact with peers as very low, significantly lower than those in group 2 at the end of their programs.

The results of the study indicate that pre-service teachers' progression in their respective teacher education programs was a factor in determining satisfaction with distance courses and/or programs (Young, 2011). Specifically, pre-service teachers who were in the early part of their programs tended to have more positive perspectives on distance education. Young makes the point that it is necessary to implement further research to explore the impact of academic standing across multiple disciplines (Young, 2011).

A study published in *Rural Special Education Quarterly* specifically compared pre-service teachers' perceptions of preparedness for teaching children with disabilities between three groups: a large lecture section, a fully on-line section, and hybrid sections of a special education introduction course (O'Brien, Hartshorne, Beattie, and Jordan, 2011). The purpose of the study as stated by the authors was to examine feasibility of multiple means of delivery in a

gateway course required of all education majors (O'Brien et al., 2011). The study took place in a large state university in the southeastern United States located in a semi-urban area. Although the university is located close to a major urban center, a large number of students travel substantial distances from smaller, rural communities. An overwhelming preponderance of participants were white female students from small regional communities, with less than 10% non-White students in courses (O'Brien et al., 2011). The particular course under investigation was Introduction to Students with Special Needs, which serves as a gateway course for admission to the teacher education program. Student perspectives on the three modes of instruction in preparing them to support children with special needs were measured on four variables: perceptions of preparedness, dispositions toward teaching special needs students, effectiveness of the learning experience, and academic performance in the class (O'Brien et al., 2011).

The fully web-based section of the course was presented entirely through Blackboard. Course design included weekly quizzes, interactive discussion through the discussion board application of Blackboard, learning modules and notes which organized text material, and archived traditional lecture videos (O'Brien et al., 2011). Hybrid courses combined attributes of both on-line and face-to-face instructional modes, including weekly quizzes, learning modules, and notes to organize test materials. The lecture presentations in both hybrid and face-to-face sections included presentation of new concepts, in-class notes, Power Point presentations, and interactive discussions.

Two instructors taught the three sections of the course, both holding doctorates in special education as well as expertise particularly in learning disabilities and communicative disorders. Both instructors had records of positive evaluations and were comparably regarded as effective instructors. The instructor of the face-to-face section had over 25 years of experience teaching

large sections of the course; the instructor of the on-line and hybrid sections possessed both experience and extensive training in the use of distance education technology (O'Brien et al., 2011). During the final week of classes, researchers distributed a questionnaire to evaluate questions of preparedness for teaching special needs students. The questionnaire was developed by the researchers, and was designed to evaluate four specific areas: attitudes toward special needs students; preparedness to teach special needs students; dispositions regarding effective instruction for students with special needs; and perception of learning in the course (web-based, hybrid, lecture) (O'Brien et al., 2011). Each item was rated on a 5 point Likert-type scale. The questionnaire was piloted with volunteer undergraduate students to ensure language clarity; peer faculty also reviewed the questionnaire and minor adjustments were made based on feedback received (O'Brien et al., 2011). Additionally, interviews were conducted through focus groups organized on the basis of course group section.

Analysis of the qualitative data indicated that students in the hybrid and lecture classes reported significantly higher levels of confidence in their ability to work with students with disabilities, and students in the lecture class reported significantly higher perceptions of understanding child development and identification of disabilities compared to the students in the on-line class (O'Brien et al., 2011). Students in the on-line class reported a significantly higher perception of flexibility in adapting the course to personal schedules, and they confirmed that they had a greater preference for learning in web-based environments (O'Brien et al., 2011).

Evaluation of the open-ended data gathered through focus group interviews revealed emergent themes regarding differences in instructional modes. Students in the on-line section of the course expressed more uncertainty regarding their level of preparedness; additionally, students in the on-line section indicated a sense that they were teaching themselves, leading to

additional uncertainty (O'Brien et al., 2011). This theme emerged only in the focus group comprised of on-line students.

Absent from the themes of the on-line student focus group, but present in both the hybrid and lecture classes, were discussions about personalization. Students in the hybrid and lecture classes noted that the enthusiasm and passion of the instructor helped to create a stronger connection with course content, especially the instructor's personal experiences and passions (O'Brien et al., 2011).

The researchers noted a distinction between traditional and non-traditional students enrolled in the on-line section of the course regarding perceptions of effectiveness of course delivery. Traditional students felt that the on-line course was more difficult than expected and took a significantly longer amount of time to acclimate themselves to the learning environment and structure; they also noted issues with organization, scheduling, and persistence (O'Brien et al., 2011). Non-traditional students enrolled in the on-line section of the course felt that the learning environment made them feel more comfortable and had a positive impact on their learning. Additionally, students in the hybrid and lecture courses were in agreement that no modifications needed to be made to either the instructional mode or content of the class, while those in the on-line section suggested a need for more structure in the layout of the course; a number of students also indicated a desire for a hybrid version of the course or a face-to-face component to be included in the on-line course (O'Brien et al., 2011).

The researchers concluded that participant satisfaction among students is related in part to having choices in course delivery method, noting that participants in each of the three programs investigated were satisfied with their choice of course delivery. Participants in the traditional lecture course expressed consistently positive perceptions of the experience, affirming the value

attached to connection to an expert in the field, which is considered a positive aspect of courses based on typical course evaluation instruments (O'Brien et al., 2011). They also state that hybrid course design was rated strong as reflected in data from each area investigated.

A research study published by Charles Hodges and S. Forrest Cowan in 2012 investigated the question of indicators of instructor presence in on-line courses perceived by preservice teachers as important. A modified form of a survey questionnaire developed by Sheridan and Kelly in 2010 was utilized; this questionnaire asked participants to rank instructor behaviors utilizing a 5-point scale, and included both multiple choice questions as well as four open-ended questions. One of the open-ended questions asked participants to list the five most and least important instructor behaviors; these behaviors could be selected from a supplied list or other behaviors added by the participants (Hodges and Cowan, 2012).

Four main themes were developed as a result of data analysis: timely response, clear instructions, availability, and course design (Hodges and Cowan, 2012). The researchers stated that participants had clear perceptions regarding timely response, with comments regarding 24 hours for email response to one week for feedback on graded assignments. The theme of "clear instruction" resulted from comments such as "provide clear instructions," "good communication," and "very clear and concise with instructions and expectations" (Hodges & Cowan, 2012). Availability noted in responses included office hours and weekly participation in discussions. The theme of course design included good textbook choice, adequate time for assignment completion, and a reasonable number of assignments.

Literature pertaining to effective teaching

In 1992, the Interstate New Teacher Assessment and Support Consortium (INTASC) published a framework of ten standards to reflect professional consensus of what beginning

teachers should know and be able to do. The purpose of these standards was to define characteristics desired in beginning teachers and to provide indicators for each of the ten standards. The standards were designed by education professionals and were intended to provide licensing guidelines.

In July 2010 the Council of Chief State School Officers (CCSSO), a committee of INTASC, published an update to the 1992 standards (Council of Chief State School Officers, 2010); in April 2011 these standards were provided to states to give an opportunity for review and comment. These standards were designed to work in tandem with the Common Core State Standards, and were intended to apply to both beginning teachers as well as those working in the field. INTASC changed its name to InTASC, removing the word “new” from its name.

The new standards are intended to reduce disparities in student outcomes and experiences, to create an environment in which teachers and school systems are accountable, and are grounded in current research about how students learn. InTASC desires to build on that research to more adequately provide for the needs of students in a global society, as well as the needs of teachers for professional development (CCSSO, 2010). The new standards have been grouped into four general categories: the learner and learning, content, instructional practice, and professional responsibility (CCSSO, 2010). Each of these groupings has been further divided into individual standards which include performance, essential knowledge, and critical dispositions for effective teaching.

The first grouping, the learner and learning, addresses the need for effective teachers to understand individual student differences, and to be able to provide differentiated instruction that ensures that each student achieves to his or her highest potential (CCSSO, 2010).

Communication and collaboration with colleagues and stakeholders allows teachers to design and implement developmentally and culturally appropriate activities.

The second grouping addresses the need for effective teachers to have deep understanding of their content area(s), and to be able to access and apply that knowledge. Multiple means of communication, including technology, are made available and accessible to students; cross-disciplinary skills are integrated, and content is made relevant to students to help them learn problem solving skills (CCSSO, 2010). Effective interpersonal communication skills, both face to face and through the use of technology, are necessary in order to model for students; modeling these skills lead students to higher order thinking as well as scaffolding learning for students.

The standard of instructional practice encompasses curriculum integration, assessment, planning, and teaching strategies. Effective teachers identify student learning objectives, and then design instruction to meet those objectives as well as assessment strategies that measure whether objectives were met. These are skills that are embedded in teaching practice so that teachers are able to provide immediate, meaningful feedback, as well as reinforce learning and instructional modification when necessary (CCSSO, 2010).

The final grouping relates directly to professional development and reflective practice. There is commitment to deep understanding of personal reference, as well as taking responsibility for student learning and the use of reflection to improve teaching. Effective teachers view themselves as life-long learners who are committed to participating in professional growth activities.

Mackay and Tymon (2013) defined four levels of the reflective process. Level 1 is the most surface form of reflection in which the practitioner is looking at classroom management

and discipline as a means of reducing negative behaviors. The assumption is that learning is directed by the teacher/instructor rather than student-directed. Level 2 is reflection in the context of changing instructional strategies or presentation in an attempt to improve teaching while maintaining control of the teaching/learning process. A belief in the ability of the instructor/teacher to know what is best results in the attitude that better learning is the result of better teaching. Level 3 is more collaborative in nature and uses authoritative sources to uphold positions; use of these sources is a means of demonstrating that a certain strategy or technique does work and therefore has value. Level 4 is the point in the reflective process where the emphasis shifts from “how” we are teaching to “what” and “why” (Mackay and Tymon, 2013). At this level of reflection, control is moved to the student, who is encouraged to look at alternatives and use questioning to establish a personal learning pathway.

Kaye (2014) lists three purposes for reflection: it is informative, generative, and transformative. Reflection is informative when it deepens understanding through personal relevance. It is generative when the reflective process guides consideration of what could have been done differently. Lastly, it is transformative when it provides a greater understanding of self and others; the practice of reflection allows the practitioner to make meaning that results in personal change and growth.

Linda Darling-Hammond defines teacher quality as traits, skills, understandings, and dispositions an individual brings to teaching (Darling-Hammond, 2009). She identifies five categories of effective teaching: general intelligence and verbal ability, content knowledge, content pedagogy, knowledge of learning and development, and “adaptive expertise” (Darling-Hammond, 2009). These qualities have been identified in research on teacher effectiveness that is based on teacher ratings and student achievement. Teaching quality as defined by Darling-

Hammond is concerned with instruction itself. Programs and initiatives designed to improve teacher and teaching effectiveness must take into account both teacher skills and abilities, as well as contexts that allow teachers to teach effectively.

Once the requisite dispositions and characteristics of effective teaching are defined, the question becomes whether or not these skills can be taught, and if so, what methods and strategies provide the most positive outcomes for pre-service teachers. In a report to the National Council for Accreditation of Teacher Education (NCATE), a blue ribbon panel outlined areas in which teacher education programs needed to consider change in order to more adequately prepare pre-service teachers to be effective (Blue Ribbon Panel on Clinical Preparation and Partnerships for Improved Student Learning, 2010). One of those suggestions is to re-design teacher education programs to more closely integrate the concepts of practice, content, theory, and pedagogy; modeling by faculty and mentors should demonstrate appropriate uses of teaching strategies, classroom management skills, use of technology, and assessment strategies (Blue Ribbon Panel on Clinical Preparation and Partnerships for Improved Student Learning, 2010).

One of the characteristics of effective teacher education programs identified by Darling-Hammond (Darling-Hammond, 2006) is that faculty modeling of professional behavior and collaboration gives students direct experience with effective teaching practice in action. Pre-service teachers seeing theoretical models and concepts being used in realistic settings lessens the divide between theory and practice. Darling-Hammond (Darling-Hammond, 2010) also notes that one of the components of powerful teacher education programs is extensive field time, working alongside teachers who show them how to teach effectively. As pre-service teachers assume more teaching responsibilities, their teaching ability grows. Darling-Hammond (Darling-

Hammond, 2010) states that learning to teach with expert guidance is essential to becoming a great teacher.

Literature pertaining to self-efficacy and self-regulated learning

Bandura's theory of self-efficacy: Bandura's theory states that self-efficacy is built over time through self-regulated skill development. Self-regulated skills include generic skills for identifying task demands, coming up with possible courses of action, setting goals, and creating personal incentives to sustain action (Bandura, 1997). These self-regulated skills allow people to improve performance in a chosen activity, and to transfer these strategies to other activities as well (Bandura, 1997). Self-efficacy beliefs are constructed through four information sources: enactive mastery experiences, vicarious experience, verbal persuasion, and physiological and affective states (Bandura, 1997). Enactive experiences are those that are indicators of ability; Bandura cites these experiences as the "most influential source of efficacy information because they provide the most authentic evidence of whether one can muster whatever it takes to succeed" (Bandura, 1997, p. 80). He further states that enactive mastery is the most effective means of building strong and generalized efficacy beliefs (Bandura, 1997). Vicarious experience, through observation of competent models, is another source of construction of self-efficacy; self-appraisal in relation to others' performances is necessary to building a personal sense of self-efficacy. Verbal persuasion of a positive nature results in a strengthening of an individual's belief in personal ability to achieve; if significant others express faith in an individual's ability, it becomes easier to build self-efficacy. Individuals additionally rely on physiological and affective status to make judgements about their capabilities as well; individuals "read" physiological and affective states to help judge personal performance (Bandura, 1997).

Bandura views human functioning as a series of reciprocal interactions between personal, environmental, and behavioral features. This concept states that individuals can affect their behaviors and environments with thoughts and beliefs, specifically self-efficacy and self-regulation. The concept is illustrated through his model of reciprocal interactions below.

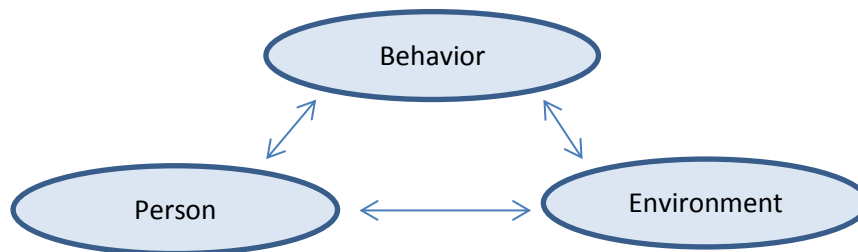


Figure 1. Bandura's model of reciprocal interactions.

In this transactional view, internal personal factors (cognitive, affective, biological), behavior, and environment are interacting determinants; relative strength may vary under differing circumstances and activities (Bandura, 1997). Personal self-efficacy beliefs are the key factor of human agency; unless individuals believe that they have the power to effectuate change and produce results, they will not try to make things happen (Bandura, 1997). Because human change and adaptation have their sources in social systems, personal agency operates within these social and cultural contexts. Human activity constructs these social structures, and in turn, social structures impose restraints as well as provide resources. Efficacious individuals are able to take advantage of these social structures; Bandura's social cognitive theory sees agency as integral to both institutions and individuals (Bandura, 1997).

Bandura defines perceived self-efficacy as belief in one's capability to organize and execute courses of action that are required in order to produce desired outcomes (Bandura, 1997). This belief in efficacy influences actions which individuals elect to pursue, the amount of

effort put into achieving results, perseverance, resiliency to adversity, how they cope with taxing demands, and the level of outcome that is finally achieved. Bandura states that beliefs of self-efficacy are central to providing the incentive to act; people must believe that they can produce desired effects as a result of their actions (Bandura, 1997). Human agency, which Bandura defines as “the power to originate actions for given purposes,” (Bandura, 1997, p. 3) is driven by belief in self-efficacy; if people do not believe that they are able to produce results, there is no attempt at action (Bandura, 1997).

Bandura states that creation of learning environments that promote development of student competencies rely heavily on the self-efficacy of teachers (Bandura, 1997). Teachers with a high sense of efficacy believe that difficult students are teachable, that they can enlist family support, and that they can overcome negative community circumstances and influences (Bandura, 1997). Conversely, teachers with low efficacy do not believe that there is much they can do to motivate students and that students’ cognitive development is limited by the home and community environment, and that they are unable to overcome these negative influences. Additionally, teachers with low self-efficacy beliefs have a pessimistic view of student motivation, emphasize classroom management techniques and strategies that are strict and rigid, and rely on extrinsic inducements and/or punishment to get students to work (Bandura, 1997). Teachers with high self-efficacy rely less on authoritarian control and are more likely to support development of students’ interests and self-directed academic behavior (Bandura, 1997). Bandura does make the statement that a teacher’s sense of efficacy is not necessarily uniform over multiple content areas; those who consider themselves highly efficacious in teaching science may not feel that same high sense of efficacy in language arts; however, efficacy is more than just the ability to transmit content (Bandura, 1997).

Literature pertaining to Zimmerman's concept of self-regulated skill development

Bandura's theory states that self-efficacy is built over time through self-regulated skill development. Zimmerman and Kitsantas (1996) identified four levels of skill development which include observational learning from a proficient model, practicing the modeled behavior under supervision, reflecting and evaluating personal performance, and independently applying knowledge and skills. In level 1, observational learning from a proficient model builds learner knowledge and understanding. Modeling is the process by which learners/observers pattern thoughts and behaviors upon those thoughts and behaviors displayed by models (Schunk and Zimmerman, 2006). Observation of competent models who perform particular actions that are successful provides information about sequencing those actions that lead to successful performance (Schunk and Zimmerman, 2006). Observers of models whose actions have resulted in successful outcomes are more likely to perform those actions (Schunk & Zimmerman, 2006).

Motivation for the learner can be enhanced by positive reinforcement provided by the model, such as applause or verbal praise. The learner demonstrates that he or she has attained the skill when he or she is able to make discriminative judgements about the model's performance. Models also should display self-regulatory behaviors, such as adherence to performance standards, and the model also should convey a sense of value placed on performance accuracy and persistence in improving skills.

Additionally, observers develop expectations regarding outcomes about consequences of actions. Bandura refers to this level as "vicarious experience," in which the attainments of others similar to oneself can be viewed by observers as possible to achieve. The observer persuades him or herself that if others can do it they have the ability to do the same, and efficacy beliefs are raised (Bandura, 1997). "The greater the assumed similarity, the more persuasive are the models'

successess....” (Bandura, 1997, p. 81). Models who are competent transmit knowledge, and teach effective strategies for coping with external demands. Acquisition of these strategies raises efficacy beliefs. Modeling that is aspirational in nature motivates self-development (Bandura, 1997). Schunk and Zimmerman state that:

...models are important sources of conveying self-regulatory skills and for building their self-efficacy to employ these skills successfully on their own. The academic self-regulatory skills mentioned at the outset of this article are amenable to transmission by social models: planning and managing time; attending to and concentrating on instruction; organizing, rehearsing, and coding informatuion strategically; establishing a productive work environment; and using social resources. For example, students might observe a teacher engage in effective time management and verbalize appropriate principles. By observing models, students may believe that they also can plan and manage time effectively, which creates a sense of self-efficacy for academic self-regulation and motivates students to engage in these activities. (Schunk and Zimmerman, 1997, p. 197).

Zimmerman’s level 2 is based on this foundation of vicarious experience, wherein the student practices the modeled behavior under close supervision. When the model, in a teaching role, provides guidance, feedback, and social reinforcement during practice, the observer is better able to perform the skill (Schunk & Zimmerman, 1997). Immediate feedback and correction provide the learner with positive encouragement. Level 2 may be termed “emulative learning,” which occurs when the model’s actions are emulated in general style and/or patterns. Feedback is provided by others, including the model (Schunk & Zimmerman, 2006). Bandura’s terminology for this level is “enactive mastery experience” in which performance is organized and controlled by self-regulatory skills (Bandura, 1997). Knowledge of skills and strategies required for effective performance provides people with the tools to manage tasks, which in turn builds self-efficacy beliefs. Bandura terms feedback as “verbal persuasion,” or “social persuasion,” in which significant others express faith in another’s capabilities. This social evaluation by others that focuses on achieved progress underscores personal capabilities, and builds a sense of self-

efficacy. The perceived level of credibility and expertise in the individual providing the feedback mediates the value of the feedback to the actor; the actor is more inclined to believe evaluations by those who are skilled in the activity, who know objective measures of capability, or who possess knowledge based on observing and comparing many different actors and their accomplishments (Bandura, 1997).

The second level, emulation, requires the learner to duplicate the general performance of the model. During these practice efforts, learners improve accuracy and motivation, if the model provides accurate and supportive guidance and feedback, with social reinforcement. Zimmerman states that although observation allows the learner to identify the major features of a skill, practice and performance activities are required in order to make the skill part of his or her personal repertoire (Zimmerman, 2013). Zimmerman likens this to a learner recognizing the particular swing of a ping-pong champion (observation) but requiring emulative performance in order to reproduce the swing himself/herself. As the learner performs the skill more accurately, the model's support can be gradually reduced, and quality of performance is sustained by direct reinforcement from the model or through social reinforcement.

In Zimmerman's level 3, students continue skill mastery, using self-evaluative feedback based on internalized standards; the student reflects and evaluates personal performance. This third level is the first of the four that is self-controlled. The skill is internalized in that the learner's mental representation is based upon the model's performance, but is not yet independent of the behavior displayed by the model, nor has this skill performance been modified in any way by the learner (Schunk & Zimmerman, 2006). The task performance is, at this point, still dependent on the model's performance, and reinforcement comes from matching the model's representation (Schunk & Zimmerman, 1997). Bandura states that most

competencies are developed over a period of time. More complex behaviors require that skills be acquired, integrated, and organized under changing conditions (Bandura, 1997). “Those who experience periodic failures but continue to improve over time are more apt to raise their sense of efficacy...” (Bandura, 1997, p. 86).

The third level requires deliberate and structured practice of the behavior independently, when the learner is able to perform the skill outside of the direct presence of models, although the learner uses representational models in order to self-observe and self-reinforce. The learner is able to compare his or her own performance of the skill against internalized standards, and the skill performance becomes increasingly automatic. Self-evaluation enhances the development of self-efficacy and helps to maintain motivation (Schunk & Zimmerman, 1997). In turn, learners who have a well developed sense of self-efficacy are more inclined to use effective self-regulatory skills (Schunk & Zimmerman, 1997).

During level 4, the learner applies knowledge and skills independently across varied and changing situations (Erlach and Russ-Eff, 2011). At this level, the learner is able to adapt skills and strategies based upon the context in which they are being performed (Schunk & Zimmerman, 2006), and are able to initiate skills and maintain motivation through a sense of self-efficacy (Schunk & Zimmerman, 2006). At this level, “the learner can initiate use of strategies, incorporate adjustments based on contextual features of the situation and maintain motivation by self-efficacy perceptions of enactive success” (Schunk & Zimmerman, 1997). The main motivational source changes from social to self-regulated sources (self-efficacy beliefs) (Schunk & Zimmerman, 1997).

The fourth level, the self-regulated level, occurs when the learner is able to adapt performance to changing conditions that did not occur in the practice settings (Zimmerman,

2013). The learner is able to choose strategies, and adapt those strategies based on outcomes. There is little or no dependence on the model, little process monitoring, and the learner's focus is shifted to performance outcomes. Motivation is provided by perceptions of the ability to successfully produce desired outcomes, and stems from a sense of personal self-efficacy built through the process of becoming a self-regulated learner. Continued feedback depends on social resources that are self-initiated (Zimmerman uses the example of a novelist seeking advice from a confidant about a character) (Zimmerman, 2013).

Purposefully integrating these four levels for building self-efficacy encourages learners to demonstrate increased levels of self-efficacy. Bandura's reciprocal interactions can be seen in each of the phases. At Level 1, observational learning, the learner is able to view a competent model. At Level 2, emulative learning, the learner is able to perform skills based on the observed model; the teacher provides feedback and correction as necessary. At Level 3, skill mastery, learners are able to mentally and overtly practice skills, while seeking out teachers and coaches to assist them in skill refinement. Finally, at Level 4, the application level, the learner is able to independently perform the behavior, reflect on performance, and adapt skills and strategies as needed (Schunk & Zimmerman, 2006).

Zimmerman states that while this multilevel model does not assume that the learner must progress through the levels in order, learners who master each level in sequence learn more easily and effectively (2013).

Within the context of Zimmerman's levels of skill development (Zimmerman & Kitsantas, 1996), the question arises as to whether on-line teacher education classes can/do provide opportunities for pre-service teachers to observe competent models and then to practice those same behaviors and receive feedback on their performance. Bandura addresses the issues

relating to what he called “telelearning” by stating that although an individual may learn a lot through technology, human teachers are needed to help build a sense of self-efficacy (Bandura, 1997). Additionally, he stated that those most at risk of educational failure are the same who are least prepared to use technology for learning. Bandura stated,

...the major goal of formal education should be to equip students with the intellectual tools, efficacy beliefs, and intrinsic interests needed to educate themselves in a variety of pursuits throughout their lifetime. These personal resources enable individuals to gain new knowledge and to cultivate skills either for their own sake or to better their lives. (Bandura, 1997, p. 114).

Bandura additionally makes the point that there are positive aspects to educational and informational technologies, among them being easy access to instruction in any subject area, individualized instruction based on student need, individual control over learning environment and content, and the ability to form network systems that allow individuals to learn from each other (Bandura, 1997).

“Self-efficacy is a construct based on Bandura’s social cognitive theory” (Boz and Boz, 2010). A teacher’s sense of self-efficacy is a personal judgment about capabilities to influence, engage, and motivate student learners (Boz and Boz, 2010). Teachers with a high sense of self-efficacy are more open to new teaching strategies and techniques, demonstrate higher planning and enthusiasm levels, and will work harder and persist longer with a struggling student (Boz & Boz, 2010).

Boz and Boz (2010) identify the most powerful source of self-efficacy beliefs to be mastery experiences. These experiences involve both success and failure; successful experience of teaching leads to a higher sense of self-efficacy. Vicarious experiences, seeing someone else coping successfully, enhances personal self-efficacy beliefs, especially if the individual being observed is perceived to have similar capabilities.

The results of Boz and Boz's (2010) study of the relationship between self-efficacy and teaching concerns indicates that increased levels of self-efficacy beliefs result in decreases in teaching concerns (Boz & Boz, 2010). Therefore, pre-service teachers should be given greater opportunity to practice in real classroom environments, "since mastery experiences are the most influential of the self-efficacy beliefs" (Boz & Boz, 2010, p. 289). Additionally, pre-service teachers should be prepared in university coursework for in-school teaching experiences. Pre-service teachers need to practice these methods in their university coursework. Social persuasion, a source of self-efficacy, can be enhanced by supportive and encouraging comments from both mentors and university instructors.

Tschannen-Moran, Hoy and Hoy (1998) define teacher efficacy as "the teacher's belief in his or her ability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context" (Tschannen-Moran et al., 1998, p. 233). Additionally, a teacher's sense of self-efficacy has shown itself to be "a powerful construct related to student outcomes such as achievement, motivation, and sense of efficacy" (Tschannen-Moran et al., 1998, p. 222). Teachers' sense of self-efficacy is also related to behavior in the classroom, including the effort put into teaching, goals set, and level of aspiration. Tschannen-Moran et al. cite numerous studies that have shown higher teacher self-efficacy enables teachers to be less critical of students when they make errors, to work longer with struggling students, and to be less likely to refer that struggling student to special education. They also exhibit greater enthusiasm for teaching, have greater commitment to the education field, and are more likely to stay in the teaching profession (Tschannen-Moran et al., 1998).

Fox and Peters (2013) examined self-efficacy in first year teachers who had completed either a traditional teacher education program, or an alternative certification program. Results of

the study indicated no significant difference between self-efficacy of first year teachers regardless of certification route; however, both groups noted that mentoring was one crucial element necessary to supporting self-efficacy.

Literature pertaining to faculty perceptions

Al-Salman (2011) identified two components that define the role of the instructor in on-line programs. The first refers to the types of competencies that are required in order to fulfill these roles, which include content and pedagogy, collaboration and networking, social issues, and technical issues. The second component involves the factors that allow faculty to achieve these competencies.

Competency in content and pedagogy relates to the ability of the instructor to design interactive learning activities, provide interaction between instructor and students and provide immediacy in feedback and interaction. Collaboration and networking provide instructors with the potential to extend learning beyond the classroom environment. A third competency is awareness of social issues, including legal and moral codes as well as social issues that arise in the absence of visual cues in the on-line environment. Fourth, instructors must have technical competencies which include proficiency and support for integration of information communication technology in the educational setting (UNESCO, 2005).

The second component refers to the factors that allow faculty to achieve those competencies. Attitudes toward distance learning and perceived barriers and obstacles are factors of this second component (Al-Salman, 2011). A major impediment to acceptance of on-line instruction has been the negative perceptions of faculty members. The Sloan Consortium report (Allen and Seaman, 2014) indicates that fewer than one third of chief academic officers feel that their faculties have accepted the legitimacy of on-line instruction; faculty acceptance has been

relatively constant since it was first quantified. Faculty concerns are related to compensation, intellectual property, replacing faculty with technology, and quality of instructional delivery and outcomes (Al-Salman, 2011). Faculty also express concern with on-line instruction because of technology problems which result in student frustration, which in turn leads to poor student evaluations (Al-Salman, 2011). In addition, faculty are concerned with losing the roots of learning when combining technology and pedagogy.

Batts, Pagliari, Mallett, and McFadden (2010) state that on-line programs can be successful when needed financial, human, and infrastructure resources that are needed to design, maintain, and support on-line programs are provided. A primary support for faculty is the proper training (Roval, Ponton, Derrick, and Davis, 2006). A significant amount of training is necessary, as well as instructional support. This instructional support may be in the form of graphic designers, multimedia specialists, instructional designers/specialists, editors, and librarians/media specialists. Appropriate training provides a more positive experience for the instructor and enables him or her to adapt old approaches to teaching while incorporating new approaches.

Georgina and Olson (2008) reported that faculty sees the university as having responsibility for providing adequate training and support. Release time for training, providing technology mentors, supplemental pay stipends, faculty input into software choices and access to technology support staff should be provided on the university level in order for faculty to buy-in to the concept of on-line instruction.

Windes and Lesht (2014) published findings from a survey of community college, four year public, and private nonprofit faculty members from colleges and universities in the midwest. The institutions from which the sample of 3,021 participants was drawn included both

commuter and residential campuses, which varied in size. Faculty with on-line teaching experience as well as those with no on-line teaching experience were eligible to participate; of the 3,021 who were sent requests to participate, 342 responded (response rate of 11%) (Windes and Lesht, 2014). The survey contained both Likert-type items as well as a few open-ended questions. Numerical data was analyzed using frequency counts of responses, and qualitative data was analyzed for generic themes (Windes & Lesht, 2014).

The percentage of faculty from community colleges who had previously taught on-line was 70%; 41% of public institution participants and 31% of private institution faculty had taught on-line. The majority of participants had taught for at least eleven years. Initial analysis of the quantitative data focused on perceptions of those who had taught on-line and those who had not. “Faculty with on-line teaching experience at community colleges expressed stronger agreement with the statement that on-line education was inferior than did faculty who had taught on-line in other settings” (Windes & Lesht, 2014). Across institutional type, responses indicated that teaching on-line requires more preparation time than face to face courses, with those having on-line teaching experience indicated the strongest agreement with the statement.

Assistance adapting courses to be utilized in the on-line environment was seen as more important by those who had no on-line teaching experience, although that assistance was seen as important across groups. Less than one third of respondents indicated that on-line teaching was part of their institution’s strategic plan (32% private, 32% public, 29% community college) (Windes & Lesht, 2014). Retaining intellectual property rights was more important to those who had not taught on-line classes than those who had previously taught on-line.

As to the factors influencing the decision to teach or consider teaching on-line for those with on-line teaching experience, all groups identified meeting students’ needs as the top

motivator. Other top motivating factors included reaching new students, discovering new technology, and having a flexible schedule. When those with no on-line teaching experience were asked what would motivate them to consider teaching on-line, the highest concern was that quality of teaching and learning would not be compromised, with meeting student needs the next highest response.

When asked to identify challenges of teaching on-line, the greater time commitment and lost interaction with students were identified by all three groups of faculty (lost interaction was highest among community college and private institution faculty, with time commitment highest among public institution faculty) (Windes & Lesht, 2014). These two challenges were identified as inhibiting factors by both experienced on-line faculty and those who had not taught on-line. The third identified challenge was concern about quality.

Across institutions and faculty, concerns related to student needs emerged; recognition of student demand for on-line instruction outweighed other faculty concerns and was an encouraging factor to teach on-line. Instructional design assistance and release time from other teaching were deemed important; however, the data suggest that flexible schedules, reaching students, and learning to use technologies in new ways may motivate faculty more than increased pay or recognition (Windes & Lesht, 2014).

Susan Hall (2007) published a dissertation research study investigating faculty perceptions of traditional versus distance course delivery in business education programs. One of the research questions asked whether faculty feel that distance methods of delivery are as effective when preparing teachers with skills outlined by the national professional association standards. The ten standards established for pre-service business teachers include: professionalism, curriculum development, instruction, assessment, classroom environment,

student organizations, professional communication, publics (the ability to build relationships between student and community), career development, and subject competencies (Hall, 2007). A survey instrument was created in the form of a questionnaire comprised of questions related to faculty opinion of the effectiveness of traditional versus on-line course delivery methods in three strands: faculty offering of courses, faculty ability to implement assessment techniques, and ability to enable students to gain necessary skills (Hall, 2007). Additional sections asked for demographic information as well as open-ended questions concerning faculty's overall feelings regarding on-line course delivery. A pilot study was administered to specially selected participants who were not included in the final study.

Eighty-seven percent (87%) of respondents had over eight years of teaching experience. A little over one quarter of respondents were tenured, and 57.4% were female. Eighty-nine percent (89%) indicated that they felt very comfortable with the use of technology (Hall, 2007). Significant differences were found in each of the ten standards with the exception of subject competencies. The courses of teaching methods and student teaching were indicated as less effectively delivered through distance education (Hall, 2007).

Analysis of the open-ended questions indicated that faculty members indicated that there were advantages of on-line distance education: flexibility to both students and faculty; the ability to overcome concerns of time and distance; allowing programs to be offered at smaller institutions that would otherwise be cost-prohibitive; increased documentation; and better written communication skills (Hall, 2007). Disadvantages noted were lack of community, lack of interaction between instructors and peers, lack of teacher modeling, and limited interpersonal skill development; additionally, faculty noted that distance education resulted in less of a connection between student and institution, possibly resulting in hindering alumni relations and

therefore future fundraising for the institution. An additional concern was the lack of training for faculty members in teaching in an on-line environment which could limit teaching effectiveness (Hall, 2007).

Summary of key points

Although on-line instruction continues to gain acceptance, there are few research studies that compare the outcomes of distance instruction opposed to face-to-face instruction (Warren, 2005). Considerable disagreement as to the benefits of distance education as it relates to university/college student outcomes, including pre-service teachers, remains, both in professional discourse as well as existing research.

NCATE's Blue Ribbon Panel (Blue Ribbon Panel on Clinical Preparation and Partnerships for Improved Student Learning, 2010) suggested that teacher education programs needed to be designed in such a way as to integrate practice, content, and theory, and to provide for opportunities for faculty and mentors to demonstrate and model appropriate use of strategies, classroom management skills, and use of technology. Darling-Hammond (Darling-Hammond, 2006) also identified the need for faculty modeling to give students an opportunity to view effective teaching practice. There is a question whether or not on-line based programs allow pre-service teachers to learn skills within the areas of classroom management and quality of student-teacher interactions (Standard 3 of the InTASC standards), which have been documented to result in higher student achievement (Youngs, 2011). Boz and Boz also note that vicarious experiences build self-efficacy (Boz & Boz, 2010). Positive feedback from mentors and university instructors also result in an increase in self-efficacy.

Faculty members continue to have reservations regarding on-line course delivery. Although the flexibility of on-line programs coupled with the ability to reach more students are

seen as advantages, questions remain among faculty regarding training and time required to develop and administer on-line courses, ability to provide modeling and appropriate feedback, and quality of instruction (Al-Salman, 2011; Roval et al., 2006; Windes & Lesht, 2014; Hall, 2007).

In order for program designers to more adequately address the needs of students in teacher education programs, as well as the needs of their students in the K-12 education system, research is necessary in order to most effectively identify those practices which enable the development of highly qualified teachers. This research will attempt to contribute information that will enhance the discourse on the effectiveness of various course delivery methods.

Colleges and universities are no longer restricted by boundaries of location and space; the explosion of available educational technology has allowed institutions of higher education to pursue alternative methods of course delivery. On-line instruction has become one of those methods that results in higher enrollment hours, and thus, higher dollars for the institution. However, high drop out rates, lack of satisfaction, and the lack of verifiable differences in learning outcomes calls into question the desirability of on line course delivery (Brown, 2003). Pre-service teachers are usually not a part in the decision making process as to whether a course or program is offered on line. In conclusion, this study is important because its goal is to provide advisory board members and designers of programs information presented in the collective voices of pre-service teachers regarding the degree that different types of course delivery methods impact their sense of self-efficacy.

Bandura's social cognitive theory is appropriate for designing and interpreting data collected in this study because his levels of building self-efficacy are directly related to the process of learning to teach through experience. The ability of pre-service teachers to develop

self-efficacy, according to both Bandura and Zimmerman, is dependent upon having proficient models, behavior practice, and immediate feedback and supervision.

CHAPTER III

METHOD

In Chapter I, the steps in the research formulation stage of this study were detailed. In Chapter III the planning steps of the Collins et al. (2006) framework are outlined. These steps are organized into three distinct phases: formulation, planning, and implementation. The formulation stage is cyclical in nature; the first five steps are to determine the goal of the study, which leads to formulation of research objectives and determining the research mixing rationale; from this, the mixing purpose(s) and research questions are addressed. The planning stage consists of selecting the sampling design and the research design; these two steps are interactive because each effects the other. The implementation stage is interactive and cyclical. This stage includes data collection, analysis, validation, and interpretation. In this study, the inclusion of both quantitative and qualitative data enables the researcher to address both relationships between specific variables as well as answer “how” and “why” questions. The model is depicted in Figure 1.

As noted in Chapter I, one main question regarding pre-service teachers’ perceptions of self-efficacy was addressed in this study, and under the main question are sub-questions. These sub-questions include specific linkage to Bandura’s theory of self-efficacy (Bandura, 1997) and Zimmerman’s model (Zimmerman & Kitsantas, 1996) for building self-efficacy.

The main question is, what are the similarities and dissimilarities in pre-service teachers’ perceptions of self-efficacy in the context of face-to-face delivery methods versus on-line delivery methods?

Sub-questions include:

1. What opportunities do the individual programs (early childhood, mid-level, special education) provide to pre-service teachers to observe modeling?
2. How do the individual programs (early childhood, mid-level, special education) allow pre-service teachers to practice teaching skills and receive feedback?
3. How are pre-service teachers encouraged/required to reflect? What types of feedback are provided on their reflective exercises?
4. What opportunities do pre-service teachers have to practice teaching skills independently prior to their field experiences?

A fifth research question pertains to faculty viewpoints.

What are the perceptions of faculty regarding the effectiveness of on-line versus face-to-face delivery methods in developing self-efficacy in pre-service teachers?

Zimmerman's Model Aligned to Pre-Service Teachers' Field Experiences

Four levels of skill development identified by Zimmerman (Zimmerman & Kitsantas, 1996) include observational learning from a proficient model, practicing the modeled behavior under supervision, reflecting and evaluating personal performance, and independently applying knowledge and skills. These four steps are the steps followed in the pre-service teachers' field experiences in the program under study. In the studied program, there are two separate field experiences during the senior year. The junior year consists of on-campus classwork, during which pre-service teachers are exposed to a variety of models and teaching styles. Those models are the faculty, who utilize various teaching strategies in the classes. Pre-service teachers have assignments in which they develop lesson plans and implement them with their peers; feedback is given by the instructor and the peers as well.

There are, in addition, several opportunities where students perform isolated teaching episodes in public school classrooms; these consist of read-alouds, participation in book fairs, and science lessons. Again, the instructor provides feedback. In the fall of the senior year, pre-service teachers spend a total of six weeks (two three week placements) in classrooms in public schools in the area in which they will be certified. During this time, they observe the clinical supervisor (classroom teacher) teaching, have isolated teaching episodes with feedback from the clinical supervisor as well as observations by the university supervisor, are required to send reflections over lessons taught, and gradually take over more teaching duties. The spring semester of the senior year consists of two eight week internship placements in the area of certification.

Early childhood majors have one placement in kindergarten and one in higher grades up to grade four; special education majors have one placement in kindergarten and one in a special education classroom (self contained or resource); mid-level students have one placement in each of their two specialty areas (language arts, social studies, math, or science). This internship period is more structured than the fall field experience; week one is observation of the clinical supervisor, week two entails sporadic teaching episodes with feedback from the clinical supervisor, weeks three and four consist of half day teaching, weeks five through seven are full time teaching weeks, and week eight is set aside for transition back to the classroom teacher. During this eight week period, pre-service teachers are evaluated a minimum of two times by the clinical supervisor and two times by the university supervisor; feedback is provided through formal evaluation forms as well as a post-observation conference between the evaluator and the pre-service teacher. A daily log is required in which pre-service teachers reflect on their experience.

Additionally, in the fall of the senior year, pre-service teachers are required to participate in a diversity experience. During this experience, pre-service teachers are assigned to classrooms in schools with diverse student populations; the first four Friday's of the semester are spent in these classrooms, and there are specific assignments which relate directly to working with culturally/linguistically/ethnically diverse children. Pre-service teachers are required to teach one small group and one whole group lesson during this experience, and all assignments require written reflections based on that week's emphasis. Teaching episodes are not evaluated by either the university supervisor or the clinical supervisor; however, feedback from the clinical supervisor is provided, as well as debriefing during on-campus courses.

Conceptual Framework – The 13 Step Model

The mixed framework developed by Collins et al. (2006) was used to organize the steps implemented in designing this study. This framework is organized in the following three distinct yet interrelated components: formulation stage, planning stage, and implementation stage, and subsumed under each stage are specific steps. Each step is designed to conceptualize the process of developing the study.

Formulation Stage:

Goal of the study: The first step in a research study is to identify the overall aim of the study (Collins et al., 2006). In this study, there are three aims: first, to add to the knowledge base regarding on line teacher education courses; and second, to inform program designers about the perceptions of pre-service teachers regarding personal sense of self-efficacy related to course delivery options; and third, to investigate faculty perceptions of how course delivery methods influence the ability to provide opportunities to build self-efficacy in pre-service teachers.

Objective of the study: The objective of the study is descriptive in nature. The objective is to describe perceptions of pre-service teachers regarding their self-efficacy, and the degree that context (face-to-face delivery methods versus on-line delivery methods) effects these perceptions. Additionally, the objective is to define the intended generalization. The generalization model used in this study is case-to-case transfer. This involves application of findings from one inquiry to a completely different setting or group (Lincoln and Guba, 1985).

Rationale and purpose for conducting this study: The rationale for conducting this study is that there is a lack of research and literature into distance education in specific degree programs, especially in the context of teacher education. This study will provide specific research exploring pre-service teachers' perceptions of their self-efficacy in the context of teacher education course delivery methods. Additionally, the review of the literature indicated that there is a gap in the published research regarding undergraduate teacher preparation through on-line course delivery; this study is designed to help fill that gap. This study will be descriptive in nature, and has a dual purpose: to add to the existing knowledge base regarding distance education models and traditional face-to-face delivery modes in teacher education, and to inform program designers about the impact of these types of delivery models on pre-service teachers' perceptions of their self-efficacy

The mixing rationale for this study is significance enhancement (Collins et al., 2006) which Collins, Onwuegbuzie & Sutton describe as “facilitate thickness and richness of data; augment interpretation of findings” by integrating quantitative and qualitative approaches (Collins et al., 2006).

This mixed purpose for using a mixed methods approach is triangulation, whereby the researcher mixes quantitative and qualitative approaches within a single study, and compares

results from both approaches in answering the research questions. Triangulation of findings is one of the purposes in the Collins, Onwuegbuzie & Sutton(2006) framework. Triangulation between the quantitative results and the qualitative results will supply multiple evidentiary information rather than a single data source (Creswell and Miller, 2000).

Research Design:

The research design used is sequential quantitative-qualitative design, and when drawing conclusions emphasis was placed on the qualitative results (Onwuegbuzie and Leech., 2007). This design allows data collected in the quantitative phase (phase 1), specifically analysis of questionnaire data to inform the qualitative phase, specifically the sampling design (i.e., selecting the interviewees) of the case studies. The questionnaire used was the Teacher Self Efficacy Scale (TSES). The long form of the questionnaire was used, which consists of 24 items relating specifically to teachers' perceptions of efficacy in student engagement, instructional planning, and classroom management. The rationale for using the TSES is that the questionnaire items are aligned to Bandura's (1997) theory of self-efficacy. In accordance with this theory, teachers with high self-efficacy are more likely to work to reach struggling students (student engagement), are more likely to develop effective instructional techniques and strategies designed to reach all students (instructional planning), and use intrinsic motivation and student interests to manage behavior (classroom management) (Bandura, 1997). Each efficacy variable is addressed through eight questions. The questionnaire responses are a Likert-formatted scale with a range from 1 ("not at all") to 9 ("a great deal").

Sampling design:

An IRB was submitted to University of Arkansas-Fayetteville and approval obtained prior to the start of any research. Pre-service teachers completed a consent form that included the

right to withdraw from the study at any time, the purpose of the study, and guaranteed confidentiality between researcher and participant. Additionally, pre-service teachers were informed that they might be contacted for a subsequent interview, and that the researcher only will know their identity. Interview participants were drawn from the same population as the survey participants (stratified purposeful sampling). Faculty members were also interviewed; a consent form including the right to withdraw from the study, the purpose of the study, and guaranteed confidentiality was provided to those faculty members.

Pre-service Teacher Sample – Phase 1 – Quantitative Phase: The convenience sample comprised senior-level pre-service teachers enrolled in mid-level, early childhood, or early childhood/special education programs and who had participated in their internship semester. Participation was voluntary, and was open to all senior students who had participated in their internship experience. The potential sample pool was approximately 30. Pre-service teachers were notified via campus email of the questionnaire’s availability. Additionally, faculty was asked to make students aware of the questionnaire’s availability. A total of nineteen (19) pre-service teachers responded to the questionnaire, a response rate of 63.3%. The table below illustrates the responses received.

Table 1			
<u>Questionnaire responses received by program and gender</u>			
<u>Program</u>	<u>Early Childhood F-2-F program</u>	<u>Mid-Level F-2-F+on-line program</u>	<u>Special Education on-line program</u>
Male	0	1	0
Female	7	8	3
Table 1			

Pre-Service Teacher Sample – Phase 2 - Qualitative Phase: A specific demographic question in the questionnaire asks pre-service teachers to specifically identify in which program they are enrolled (early childhood, early childhood with special education, mid-level). Nine interviews (three pre-service teachers from each program) were conducted. The rationale for setting nine as the total number of pre-service teacher interviews was two-fold. First, nine interviews provided information over a range of efficacy perceptions, from high to low, with three interviewees from each program. Onwuegbuzie and Collins (2007) state that sample size should be informed by the research objective, the research questions, and the research design. Their article includes a table that indicates sample sizes anywhere from three to several hundred. For the purposes of this study, nine interviews represent fifty three percent (53%) of the questionnaire respondents, and thirty percent (30%) of the original pool of pre-service teachers. Secondly, the pool from which the interviewees were selected is homogeneous in multiple characteristics. Specifically, all respondents are white; all live within a 70 mile radius of campus; and all are members of cohorts. During the junior and senior years, the pre-service teachers in each of the programs follow the identical course rotation, with the same instructors. None take any program courses out of sequence or on another campus or with a different instructor. Guest, Bunce, and Johnson (2006) stated, “The more similar participants in a sample are in their experiences with respect to the research domain, the sooner we would expect to reach saturation” (Guest et al., 2006, p. 76). The difference between the respondents was based on the delivery of instruction. The early childhood program is offered only face-to-face; the mid-level program is a mix of face-to-face and on-line; the special education program is offered on-line.

To acquire the pool of interviewees, pre-service teachers’ scores on the questionnaires were ranked on a continuum from high to low. Inspection of the means of the scores indicated

very little variability. To select interviewees, the total score responses were summed for each pre-service teacher who responded to the questionnaire, and those scores were ranked high (9) to low (0); sub-samples were selected from the high, mid-range, and low points of the spectrum of responses to the TSES questionnaire. The following table illustrates selection by program and gender for the interview phase of the study.

Table 2

Selection by program and gender for interviews

<u>Program</u>	<u>Early Childhood</u> <u>Face-to-face</u> <u>program</u>	<u>Mid-Level</u> <u>F-2-F+on-line</u> <u>program</u>	<u>Special Ed.</u> <u>On-line program</u>
Interviewee-low	Female	Female	Female
Interviewee-medium	Female	Male	Female
Interviewee-high	Female	Female	Female

Table 2

Females predominated both the quantitative and qualitative samples; however, the UNESCO Institute of Statistics (UNESCO, 2015) reports that females comprise 87.2% of primary teachers in the United States, and 66.8% of lower secondary teachers. In the quantitative phase of the study, females comprised 89.5% of the total respondents; females were 88.9% of the interview participants. These numbers are a reflection of the proportions of working teachers in the United States. Additionally, in the programs studied in this research project, there are no males in either the early childhood or the special education programs.

Nested sampling design was used to select participants in pre-service teacher interviews. Onwuegbuzie and Leech (2007) define nested sampling strategies as comparing two or more members of the same sub-group, when members of the subgroup are a sub-sample of the full sample. The most common purpose for nested sampling design is to select key informants, who

“often generate a significant part of the researcher’s data” (Onwuegbuzie & Leech, 2007, p. 247). In this research, data from the quantitative phase of the study was used to select the participants in the qualitative phase of the study, creating a sequential mixed methods design (Onwuegbuzie & Leech, 2007).

Faculty Interviews: Purposive heterogeneous sampling (Onwuegbuzie & Collins, 2007) was used to select participants in faculty interviews. Heterogeneous sampling was used in order to ascertain a variety of viewpoints of faculty members regarding their perceptions of the effectiveness of course delivery methods in developing pre-service teacher self-efficacy. Multilevel sampling design was used in the selection of faculty members for interviews. Onwuegbuzie and Leech (2007) state that multilevel sampling designs facilitate “credible comparisons of two or more subgroups that are extracted from different levels of the study” (Onwuegbuzie & Leech, 2007, p. 248). In this study, the two faculty members selected represent a hierarchy in that they bring two opposing voices in terms of experience and viewpoints to the discussion.

For the purposes of this study, two faculty members were selected based upon differing viewpoints and different uses of technology to deliver course content. The rationale for selecting two faculty members is, first, that the focus of this study is on pre-service teachers’ perceptions of self-efficacy and faculty interviews were conducted for the purpose of providing insight into how faculty addresses self-efficacy development in pre-service teachers; and second, the opposing viewpoints and experience of the faculty members selected offer a distinct contrast between faculty viewpoints on course delivery methods. One faculty member has taught numerous on-line courses in the education program; she has also taught face-to-face courses and blended courses. The second faculty member has not taught and does not use any form of

technology delivery for course content. These two individuals were selected based on variation in perspectives, and helped to gain greater insights into teacher education on-line course delivery and helped identify common themes between the two extremes.

Data Collection Process

Quantitative instruments and procedures: In the quantitative phase of the study the Teacher Sense of Efficacy Scale (TSES) developed by Megan Tschannen-Moran (College of William and Mary) and Anita Woolfolk-Hoy (Ohio State University) was used to assess pre-service teachers' perceptions. The long form of the questionnaire was used, which consists of 24 items relating specifically to teachers' perceptions of efficacy in student engagement, instructional planning, and classroom management. The questionnaire responses are a Likert scale with a range from 1 ("not at all") to 9 ("a great deal"). Permission to use the TSES was obtained prior to the start of the study. Demographic data from pre-service teachers was also elicited, including gender, and program (mid-level education, early childhood education, or early childhood/special education). The questionnaire was delivered on line through Survey Monkey.

This questionnaire (long form) comprises twenty-four questions addressing three variables: efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management. Bandura states that teachers with low self-efficacy do not believe in their ability to engage unmotivated students (efficacy in student engagement as measured by the TSES), and that their influence on student development is limited by outside influences, such as home or neighborhood environment (Bandura, 1997). Teachers with high self-efficacy beliefs expend extra effort to develop techniques to reach struggling students and are more able to overcome home and neighborhood influences through effective teaching (Bandura, 1997). Instructional strategies (efficacy in instructional planning as measured by the TSES) are more

likely to be developed to reach all students by teachers with high self-efficacy; conversely, those with low self-efficacy are more inclined to give up on students who are having difficulty and place the blame for non-achievement on the student (Bandura, 1997). Teachers with low self-efficacy experience many classroom problems (efficacy in classroom management as measured by the TSES); they are more inclined to use punitive discipline measures, rely on extrinsic motivation to get students to work on classroom tasks, and to concentrate more on content than student development, whereas teachers with high self-efficacy use persuasion and development of students' intrinsic motivation and interests to manage behavior (Bandura, 1997). These are the variables in the TSES (student engagement, instructional planning, and classroom management). Each efficacy variable is addressed through eight questions. The questionnaire, along with demographic information and responses to open-ended questions, should require no more than 30 minutes to complete.

Pilot Study

Prior to the questionnaire being made available to pre-service teachers, a pilot survey instrument was provided to a small number of participants to ensure clarity of language. Five participants were asked to complete the questionnaire, and an interview was conducted with the median respondent among those completing the pilot questionnaire. Changes were made in the questionnaire as a result of the pilot study. First, on the questionnaire itself, descriptors were assigned to the even numbered response categories; with no descriptors in the pilot questionnaire, no responses were tabulated. Secondly, a change was made to the demographic questions regarding distance from campus; because the study took place in a rural area, time and distance do not always correspond – a 30 mile trip can take forty-five minutes to an hour

depending on what types of roads there are between home and campus. An additional question was added so that both travel time and distance were considered.

Qualitative Interviews – Pre-service Teachers and Faculty

Interview protocol: The rankings of the pre-service teachers' responses to the questionnaire were used to select the pre-service teachers who were interviewed in phase 2. Likert scores were summed and the total score was used to classify points on the spectrum (high, medium, low) for selection of interviewees. The interview questions below were designed to address the four skill levels outlined by Zimmerman (Zimmerman et. al. 1997):

1. What opportunities did your program provide for you to observe models?
2. What opportunities did you have to practice teaching skills, and receive feedback?
3. What opportunities did you have to reflect on that practice? Did you receive feedback that assisted you in reflecting?
4. What opportunities did you have to practice those teaching behaviors independently?

Data analysis:

The type of data analysis used was sequential quantitative-qualitative analysis (quan \Rightarrow QUAL) (Onwuegbuzie & Collins, 2007). This analysis involves the formation of case studies based on analysis of quantitative data. Qualitative case studies were used to triangulate the questionnaire results, specifically variations between program delivery and sense of self-efficacy based on descriptive statistics to the themes developed in the qualitative phase. The qualitative (Phase 2) analysis is a combination of within case and across case analysis (Miles, Huberman , and Saldaña, 2014).

Phase 1: In the quantitative analysis, reliability coefficients were calculated to ascertain the reliability of responses, and descriptive statistics were calculated to describe the data. Tables illustrating descriptive statistics that were generated are included under the analysis section. Statistics included overall means and ranges for the three programs (early childhood, mid-level, and special education), as well as means and ranges for the three subsets of questions (student engagement, instructional planning and strategies, and classroom management) on the TSES calculated for each program.

Phase 2: In the qualitative analysis, analysis was organized with a within case and cross case design as recommended by Miles et al. (2014).

Within case design: Miles et al. (2014) state that the primary purpose of within case analysis is to describe, understand and explain what has occurred within a single context. The case is studied as an entity that stands alone, looking for associations and effects within the individual case. In this study, *a priori* codes were established based upon Zimmerman's self-efficacy building model (Zimmerman & Kitsantas, 1996). These codes are descriptive in nature; the codes used were "modeling," "practice with feedback," "reflection," and "independent performance." Although these codes were established prior to beginning analysis, additional codes were created during analysis. After transcription of the interview and re-reading along with the recording to check for accuracy, the printed copy of the transcript was used for coding. Codes were noted in the margins and after completion of the individual case coding, code words were highlighted to allow the researcher to more efficiently and accurately view each case in its entirety. A separate list of those codes that emerged during the coding process (those that were not the *a priori* codes) of each interview was maintained and used in subsequent case coding. This allowed for consistency when moving from one interview to another. A matrix was created

that indicated each individual code and non-exemplars for each separate interview. A summary of the matrix design is presented in Table 3. Hatch (2002) states that typological analysis has usefulness when initial data groupings and categories are easily identified and justified. In this study, the establishment of *a priori* codes provided the initial groupings and categories. The matrix design offered a means of providing the researcher with a quick way of referring back to the original transcript and broke the large amounts of data generated by individual interviews into manageable summaries.

The matrix also allowed the researcher to look for patterns, relationships and themes. Hatch (2002) defines patterns as regularities. Specific regularities identified in this study included difference (things happen in different ways) and frequency (things happen often or seldom). Relationships are links between elements of the data (Hatch, 2002); research literature may or may not suggest relationships that are identifiable in the data. Themes are broad, overarching statements that run through the whole of the collected data.

Table 3	
<u>Sample Matrix Design for Interview Coding</u>	
<u>Code</u>	<u>Location/Occurrence</u>
Modeling	Page/occurrence/count/wording
Practice with feedback	Page/occurrence/count/wording
Reflection	Page/occurrence/count/wording
Perform independently	Page/occurrence/count/wording
Additional codes as necessary	Page/occurrence/count/wording
Table 3	

Cross-Case Design: Miles et al. (2014) state that an advantage of cross-case analysis is that it increases generalizability, and it allows the researcher to develop deeper descriptions and

explanations. For this study, a variable oriented approach was used. Miles et al. (2014) define this approach as being theory centered and conceptual, looking at broad patterns discovered among a variety of cases. A similar matrix was used to record coding results, which specified code, direct quotes or paraphrases, and the identification of the TSES score and pre-service teacher enrollment program. A summary of the matrix design used to record coding results is presented in Table 4.

Table 4			
<u>Matrix for recording coding results</u>			
<u>Code</u>	<u>Quote/Paraphrase</u>	<u>Pre-service teacher</u>	<u>Program</u>
Modeling		High/Middle/Low TSES score	ECH/Spec Ed/Mid- level
Practice with feedback		High/Middle/Low TSES score	ECH/Spec Ed/Mid- level
Reflection		High/Middle/Low TSES score	ECH/Spec Ed/Mid- level
Perform independently		High/Middle/Low TSES score	ECH/Spec Ed/Mid- level
Additional codes as necessary		High/Middle/Low TSES score	ECH/Spec Ed/Mid- level
Table 4			

Analysis of Faculty Data

Within Case Design: The same process was followed as was used in within case analysis of pre-service teacher data for each faculty member. Again, *a priori* codes as specified above were used based on the Zimmerman model (Zimmerman et. al., 1997).

Cross-Case Design: The same process was followed as was used in cross-case analysis of pre-service teacher data. However, since only two faculty members were interviewed, they were classified as either “on-line” or “face to face” for the purposes of comparison.

Figure 2 shows each step in the process.

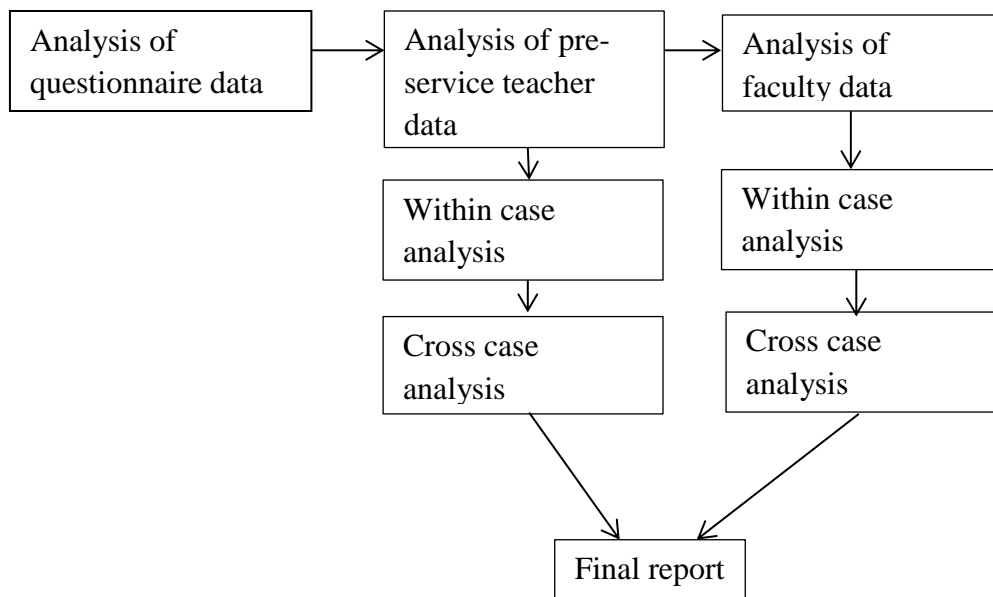


Figure 2: Analysis process

The interviews were analyzed using a form of content analysis to determine themes. The form of content analysis utilized was *a priori*, with the four themes established by Bandura's steps in building self-efficacy as well as Zimmerman's sequence of building self-efficacy. *A priori* coding begins with categories established before the coding process begins (Stemler, 2001). During the coding process, necessary revisions to categories are made and categories are refined to allow for maximization of exclusivity. The interview questions were based upon the four steps identified by Zimmerman (Zimmerman & Kitsantas, 1996); probing questions were asked to provide more detailed narrative. Zimmerman defines the steps in building self-efficacy as observation of competent models, practicing the behavior with feedback, reflection on personal performance, and being able to perform the behavior independently (Zimmerman & Kitsantas, 1996). Zimmerman states that these steps do not necessarily need to be in sequence,

although providing opportunities in sequence allows for more efficient and structured building of self-efficacy skills.

Qualitative data obtained from interviews was analyzed using typological analysis as defined by Hatch (Hatch, 2002). Hatch describes typological analysis as dividing data into set categories based on predetermined typologies (the four steps to building self-efficacy as defined by Zimmerman et. al., 1997). Hatch identifies nine steps in typological analysis (Hatch, 2002, p. 153). Those nine steps are identified in Table 5.

Table 5	
Typological analysis	
<u>Step</u>	<u>Process</u>
1	Identify typologies to be analyzed.
2	Read the data, marking entries related to the typologies.
3	Read entries by typology, recording the main ideas.
4	Look for patterns, relationships, themes within typologies.
5	Read data, coding entries according to patterns identified, keeping a record of which entries go with which elements of patterns.
6	Decide if patterns are supported by the data, and search the data for negative cases.
7	Look for relationships among the patterns.
8	Write patterns as one-sentence generalizations
9	Select data excerpts that support generalizations.
Table 5	

Analysis process

First, verbatim transcriptions of digitally recorded interviews were completed. Each recording was reviewed for accuracy against the original recording after transcription. The four typologies identified were those established in Zimmerman's four step process in building self-efficacy: observing competent models, practicing behavior with feedback, reflecting on performance, and performing the behavior independently. The data was read, and main themes

were recorded. Patterns within the typologies were identified; data was read again and entries were coded according to identified patterns. The data was reviewed again, searching for non-examples of the patterns. Relationships among the patterns were defined, and excerpts from the transcriptions that supported the steps identified by Zimmerman were marked for inclusion in the final report, as well as non-examples also included in the final report.

Hatch's model (2002)

Bandura's social cognitive theory fits into Hatch's (Hatch, 2002) constructivist assumptions because his levels of building self-efficacy are directly related to the process of learning to teach through experience (Erlich et al., 2011). The four levels of skill development identified by Zimmerman (1997) are also constructivist in nature. The integration of interpretations of the questionnaire data and the interpretations of the interview data were used to generate case studies.

Typological analysis: Typological analysis was utilized also in analyzing faculty interviews. The four steps identified by Zimmerman (1997) were employed; the interview questions were based upon "how" questions: how do you see competent models being available in face-to-face course delivery? on-line delivery? How are pre-service teachers provided with opportunities to practice teaching behaviors in the different types of course delivery? How is feedback provided? How is reflection incorporated into the course delivery model? How are courses designed to allow pre-service teachers to move from practice to independent behavior?

Data validation:

Quantitative Data – Phase 1:

Reliability coefficients for the pre-service teachers' questionnaire responses are provided in Chapter IV, Analysis.

Qualitative Data – Phase 2:

Pre-service teacher member checking: Transcripts of the interview data and researcher interpretations of the data were member checked. Member checking is a process whereby the data collected and transcribed and the interpretations are taken back to the interviewees so that they might corroborate the interpretations of the researcher. In this study, copies of the transcribed interviews and coding notes were emailed to the interviewees for their review. At the convenience of the interviewees, meetings were held between the individual pre-service teacher interviewed and the researcher to validate the interpretations noted in the coding notes (Parker, 1993) and to verify accuracy of the transcriptions to the best of knowledge of the pre-service teacher.

Faculty member checking: For faculty data member check, the same procedure was followed as for pre-service teachers member check. Transcriptions and coding notes were shared with faculty interviewees for their review. Accuracy of transcriptions was verified by faculty interviewees.

Peer debriefing: Peer debriefing, whereby the researcher is “debriefed” by a peer, was conducted to identify and challenge the researcher’s assumptions, and to ask questions about the researcher’s interpretations of the data (Creswell and Miller, 2000). Peer debriefing consists of the researcher sharing information about the research process with an impartial party (one who has no stake in the outcome of the research) who reviews and provides feedback during the course of the research project (Frels and Onwuegbuzie, 2012). The researcher was interviewed by a doctoral level peer in the teacher education department who is knowledgeable about the teacher education program in the study, and who has experience in qualitative research. The purpose of questions asked during the debriefing interview was to encourage reflection on the

part of the researcher; to address any bias the researcher may have; and to allow the researcher to verify/not verify initial suppositions. The following questions were asked during the debriefing process.

1. How do you think that your being an instructor in the program may have influenced interviewee responses?
2. Do you think that having taught face-to-face and on-line courses may have resulted in some bias on your part based on your personal experience? And how could that bias have impacted the responses in the interviews?
3. Did anything happen during your research that was not expected? What, and how did you respond?
4. Did you encounter any issues during the research that could have or did create an ethical dilemma? If so, what and how did you handle it?
5. How did you ensure that you represented the perceptions of the interviewees in a fair and balanced manner?

Table 6 below details the steps in the data validation process.

Table 6				
<u>Steps in validation process</u>				
<u>Step</u>	<u>Category</u>	<u>Method of validation</u>	<u>Lens</u>	<u>Procedure</u>
1	Researcher self-disclosure	Researcher reflexivity	Researcher	Researcher report on personal assumptions and beliefs through “role of researcher” section in analysis

Table 6 cont.

Steps in validation process

2	Pre-service teachers interviews	Member checking	Participants	Transcripts provided to pre-service teachers to confirm accuracy
3	Faculty interviews	Member checking	Participants	Transcripts provided to faculty to confirm accuracy
4	Researcher self-disclosure	Peer debriefing	3 rd party	Third party conducts debriefing with researcher to challenge

CHAPTER IV ANALYSIS

Pre-service Teachers – Phase 1: Demographics

The sample population for Phase 1 was comprised of senior-level pre-service teachers enrolled in mid-level, early childhood, or early childhood/special education programs who had participated in their internship semester.

Pre-service Teachers – Phase 2: Demographics

Description of interviewees from demographic data gathered from the open ended questionnaire questions is provided below.

Interviewee #1 (Early Childhood – High coded as ECH-H) is white female, early 20's, no children. She lives at home with her parents, which is approximately 30 – 45 minutes from campus. She has not worked outside the home during the course of the program, although she has held summer jobs when school was not in session. Interview took place on March 28, 2015. Preference for course delivery: face to face.

Interviewee #2 (Early Childhood – Middle coded as ECH-M) is white female, early 20's, single. She lives with her parents approximately 10 minutes from campus, and has not worked outside the home while in the teaching program. Interview took place on July 22, 2015. Preference for course delivery: face to face for education courses, face to face or on-line for general education requirements.

Interviewee #3 (Early Childhood – Low coded as ECH-L) is white female, late 30's, two early teen children at home. She lives with her children and husband approximately 20 minutes from campus in a small community outside of town. She has not worked outside the home during the teaching program, but has volunteered at her children's school on days she was not attending

class or in the field. Prior to entering the teaching program she had worked as a substitute teacher in the same district her children attend. That school is in a small rural district in a socioeconomically depressed area. Interview took place on April 2, 2015. Preference for course delivery: face-to-face.

Interviewee #4 (Mid-level – High coded as ML-H) is white female, early 40's, divorced with one teenage daughter. She lives in town approximately five minutes from campus. She has previously worked as an EMT, a school para-professional, a substitute teacher, and in the teen section of the local library. She worked a total of ten to twenty hours per week while enrolled in the teaching program, except during internship when she only worked Saturdays at the library. Interview took place on May 8, 2015. Preference for course delivery: face to face.

Interviewee #5 (Mid-level – Middle coded as ML-M) is white/Asian male, mid 20's, single, no children. He lives approximately five to ten minutes from campus. He worked approximately twenty hours per week while enrolled in the teaching program except during internship. Interview took place on June 17, 2015. Preference for course delivery: face to face for education courses, on line for general education and elective requirements.

Interviewee #6 (Mid-level – Low coded as ML-L) is white female, mid 30's, married with four children; two of the children are school age and two are in daycare. She lives approximately 15 minutes from campus. She holds a nursing degree and before entering the teaching program worked in a local hospital. She has not worked while in the teaching program. Interview took place on April 17, 2015. Preference for course delivery: face to face.

Interviewee #7 (Special Ed – High coded as SPED-H) (personal interview, April 24, 2015) is a white female, early 30's, married with two children, one of whom has been medically and academically diagnosed as having autism. She lives approximately twenty minutes from

campus. Prior to entering the teaching program she worked as a human resources manager. Unlike others in the teaching program, her goal is not to teach in the public schools, but to work with special needs students and their families in a therapeutic/behavioral agency for early intervention. Interview took place on April 24, 2015. Preference for course delivery: on-line.

Interviewee #8 (Special Ed – Middle coded as SPED-M) is white female, early 20's, single. She lives with her parents approximately one hour from campus, and has worked approximately 20 hours per week during the school year and full time during summer. Interview took place on June 22, 2015. Preference for course delivery: face to face with some on-line.

Interviewee #9 (Special Ed – Low coded as SPED-L) (personal interview, April 3, 2015) is white female, mid 30's, married with two children. She lives approximately fifteen minutes from campus. She has not worked outside the home while she was enrolled in the teaching program. Interviewee #9 took four years to complete the two year teacher education program; in her junior year she failed three courses and had to repeat those and take additional coursework in order to bring her GPA in alignment with department requirements. She did successfully repeat the courses, but then withdrew from school for a year with no explanation given, and then returned to complete her senior year. Interview took place on April 3, 2015. Preference for course delivery: face to face.

With the exception of Interviewee #9, all interviewees completed the teaching program within a two year period (excluding general education requirements). In order to meet program retention requirements, all have maintained a minimal overall grade point average of 2.5 and a minimum program grade point average of 2.5 with no program courses lower than a C.

Faculty: Demographics

The first interviewee, S., has over 30 years of public school teaching experience, and 15 years full time experience in higher education. She has taught all grade levels in public school from kindergarten through high school. She has a B.S.E. in art education, an M.S.E. in curriculum and instruction, and a Ph. D. in curriculum and instruction. She currently is teaching mid-level teacher education classes, and does extensive field and internship supervision. She teaches only face to face courses and does not use any form of technology in her course delivery.

The second interviewee, K., has over 20 years of public school teaching experience at the elementary level, and four years of higher education experience. She taught lower elementary grades when in the public school setting. She has a B.S.in elementary education, and an M.S.E. in curriculum and instruction. She currently teaches freshman and sophomore level introductory education courses. She teaches a mix of on-line, hybrid, and face to face courses.

Pre-service Teachers - Quantitative Results – Questionnaire

At the conclusion of the survey open questionnaire period, individual results were tabulated in order to establish which participants were requested to take part in the interview process. Individual results were tabulated in the following order: each individual's response totals were summed; data was sorted by program (early childhood, mid-level, special education); the high, middle, and low totals for each group were calculated; and mean, and median for each group was computed. The high, middle and low responders from each group were asked to participate in the interview phase of the study. Table 7 illustrates the results of the quantitative phase of the study.

Table 7

Descriptive Statistics and TSES Score Ranges – Phase 1

	HIGH TOTAL	MIDDLE TOTAL	LOW TOTAL	MEAN	MEDIAN	RANGE	STD DEV	n
Early Childhood	204	195	176	191.71	195	28	11.07	7
Mid-level	208	171	155	174.67	171	53	16.74	9
Special Education	208	135	134	159.00	135	74	42.44	3

Table 7

Table 8 below illustrates mean, range, and high and low scores for the three clusters (student engagement, classroom management, and instructional strategies) identified in the TSES. The mean, range, high and low scores for each cluster by program are reported. Although these results were not used to determine which pre-service teachers were selected for the phase 2 interview phase of the study, they provide supporting documentation for consistency of scores, with early childhood pre-service teachers having the highest totals in all three clusters, and special education pre-service teachers having the lowest.

Table 8

TSES Scores by TSES Cluster and Program

<u>TSES Cluster</u>	<u>Program</u>	<u>Mean</u>	<u>Range</u>	<u>High</u>	<u>Low</u>
Student engagement	ECH	64.29	10	68	58
	ML	57.11	25	72	47
	SPED	55.67	22	70	48
Classroom management	ECH	65.71	10	70	60
	ML	61.33	15	72	57
	SPED	51.00	26	68	42
Instructional strategies	ECH	61.71	8	66	58
	ML	56.22	13	64	51
	SPED	52.33	27	70	43

Table 8

Interviews were conducted in the period March through June 2015. Interviews with pre-service teachers were held in a private setting (the researcher's office) at a time convenient to the interviewees. Interviews lasted between forty five (45) minutes and one hour. Faculty interviews were held in May 2015 after the conclusion of the spring semester, and were conducted in the researcher's office.

A total of nineteen (19) responses to the questionnaire were received from pre-service teachers. The initial pool of those asked to participate in the questionnaire was thirty (30); five (5) of those were polled separately and used in the pilot. Those five responses were excluded from those used to establish the interview pool. All nine individuals (high, middle and low score from each program) asked to participate in an interview agreed to do so. The range of scores was closely aligned both across programs and within programs, with the exception of the Special Education group. The range between the high and two low scores for the Special Education pre-service teachers was approximately 73; this may be accounted for by the fact that one of the special education pre-service teachers has a daughter who is identified as having special needs, and she is extremely involved in her daughter's education and has spent time researching and implementing various behavior plans and educational strategies. Additionally, she belongs to a support group. This may have resulted in a higher sense of efficacy prior to starting the program, based on her personal experiences.

Reliability coefficients for the TSES were calculated and the results illustrated in the table below. Coefficients for each program (early childhood, mid-level, and special education) were calculated.

Table 9

Reliability Coefficients for TSES

<u>Group</u>	<u>Reliability coefficient</u>
ECH (n=7)	.90
MLED (n=9)	.89
SPED (n=3)	.67
Total (n=19)	.94

Table 9

Small sample size influenced the outcome of calculations, especially the sample size in the special education group (n=3).

Pre-service Teachers - Qualitative Results – Interviews

The interview questions below were designed to address the four skill levels outlined by Zimmerman (Zimmerman et. al., 1996) and were explored with each interviewee during the interview. Each interviewee was asked to respond to the question, and to provide concrete examples when possible.

1. What opportunities did your program provide for you to observe models?
2. What opportunities did you have to practice teaching skills, and receive feedback?
3. What opportunities did you have to reflect on that practice? Did you receive feedback that assisted you in reflecting?
4. What opportunities did you have to practice those teaching behaviors independently?

The questions were designed specifically to address each of the four areas defined by Zimmerman (Zimmerman & Kitsantas, 1996). Those four steps in building learner self-efficacy

and self-regulated learning skills may or may not be performed sequentially, but Zimmerman (2013) notes that mastery of the levels in sequence allow for easier and more effective learning. The four levels identified by Zimmerman (Zimmerman & Kitsantas, 1996, Zimmerman, 2013) align with the structure of the teacher education program under study. Within case and cross case analysis of themes that emerged apart from *a priori* codes consisted of two general themes; these were coded as “cohort support” and “knowing faculty.” During analysis, it became apparent that within the four skill levels identified by Zimmerman (Zimmerman & Kitsantas, 1996) sub-levels were addressed by the pre-service teachers. Specific discussion of each of the *a priori* themes as well as emergent themes follows.

In addition to the interview questions outlined, pre-service teachers were asked for any additional comments they might have regarding how course delivery effected development of self-efficacy. The table below is a partial summary of the matrix used to record coding results.

Table 10			
<u>Sample coding results matrix</u>			
<u>Themes</u>	<u>Categories</u>	<u>Example Codes</u>	<u>Description</u>
Modeling	By instructors	She showed An example Thought out loud	Pre-service teachers had exemplars and modeling of thought processes and action by instructors
Modeling	By peers	Teach in front of peers Easier to make mistakes in front of friends	Pre-service teachers had the opportunity to observe peer models

Table 10 cont.

Sample coding results matrix

Practice with feedback	From instructors	Say something positive Made me feel better	Pre-service teachers had the opportunity to receive feedback on teaching episodes from instructors
Practice with feedback	From peers	Different things from different people Learned from each other	Pre-service teachers had the opportunity to receive feedback on teaching episodes from peers
Reflection		Think about what we did I thought a lot Thinking like teachers It clicked	Pre-service teachers had numerous opportunities to engage in reflective practice over the course of the teacher education program
Perform independently		More sure of myself Feeling my way I can do it	Pre-service teachers had opportunities in field experiences to perform teaching skills independently
Emergent themes	Cohort support	Helped each other Positive Got to know each other Celebrated	Pre-service teacher cohorts provided support for each other during the course of the program
Emergent themes	Knowing faculty	Personal relationship Not stressing Cared about us	Pre-service teachers felt that relationships with instructors helped build self-efficacy

Table 10

Zimmerman's Four Step Model for Building Self-Efficacy

Model observation

The first interview question asked pre-service teachers to identify what opportunities the program offered for them to observe models. Two sub-levels that were identified included modeling by instructors and modeling by peers.

Modeling by instructors: Although all nine interviewees identified various types of modeling they observed in their programs, there was a difference between the types of modeling available depending on whether the program was offered face-to-face (early childhood), mixed (mid-level) or on-line (special education). The three early childhood pre-service teachers and the three mid-level pre-service teachers all identified modeling by instructors as meaningful by allowing them to see a specific teaching behavior.

ECH-M (personal interview, July 22, 2015) stated,

"Well, some of it was obvious like when Mrs. F. said, I'm going to do a direct instruction lesson with you so that you can see what it looks like. That class we saw lots of modeling. Like, each different model she showed it to us by teaching us the model in that way – and then we got to watch videos that had real kids so we could see what it looked like in the regular classroom."

This comment referred to a specific class on teaching models/strategies.

The ECH-L (personal interview, April 2, 2015) pre-service teacher, talking about creating and writing lesson plans, stated,

"...they (the instructors) modeled it, and gave us an example of what we were supposed to do, and had a hands on example that we could visually see on a sheet of paper for what we were supposed to do. And that helped me start doing my lesson plans."

Bandura refers to this level as "enactive mastery experience" in which performance is organized and controlled by self-regulatory skills (Bandura, 1997). Knowledge of skills and strategies required for effective performance provides people with the tools to manage tasks,

which in turn builds self-efficacy beliefs; observation of competent models allows the observer to acquire knowledge of effective skills (Bandura, 1997). Actions that are modeled may appear more or less difficult, and threats more or less manageable, than the observer originally thought; the change in perceptions of the difficulty of the task changes beliefs in the learner's ability to perform the same task (Bandura, 1997). Bandura (1997) states thought processes of a model are not observable, but that this can be overcome by the model's use of verbalization during performance of the task; he states that in activities that are more complex, the verbalization of thought processes are more beneficial than the modeling of the action; modeling of cognitive processes that accompanies the modeling of the skill is the most effective form of modeling.

A mid-level pre-service teacher (ML-M, personal interview, June 17, 2015) described how one instructor asked and answered questions as she taught a lesson on the use of reading strategies.

"She did a strategy, and then she thought out loud like a student might, like what if I can't think of anything to put in this part of the graphic organizer, and she was like, well, how about if you fill in the other parts first and maybe that will help you fill in that part you are having trouble with. When she talked out loud about what she was thinking, it helped me see how the student might think and ways to help them figure things out."

Bandura states that modeling behaviors conducive to building efficacy beliefs include two factors, predictability and controllability (Bandura, 1997). Predictability refers to the model's demonstration of how perceived threats can be coped with; controllability refers to the model demonstrating effective strategies for dealing with those threats (Bandura, 1997).

One pre-service teacher (ECH-L, personal interview, April 2, 2015) stated that,

"I always thought cooperative learning would be really hard to do and the thought of doing any kind of PBL (project based learning) scared me and I know that's being done in a lot of schools. But seeing Mrs. F. do it, and when she talked about the problems you could have and what to watch out for, that made it make more sense."

Zimmerman (2013) states that when the model provides a verbal rationale for the activity, there is increased cognitive impact, which results in significant transfer to other, similar tasks.

One of the challenges faced by instructors in the location under study is that pre-service teachers' spoken language is often grammatically incorrect or uses local colloquialisms that are not appropriate for the classroom. Because these speech patterns are life-long habits, they are sometimes difficult to correct. It becomes even more difficult because three of the four full time, and all three of the adjunct instructors on this campus are not native to the area, and therefore do not have the same speech patterns. Zimmerman (2013) notes that self-regulatory processes displayed by models such as adherence to standards or values also build motivation for improvement. Zimmerman (2013) specifically mentions a linguistic model who self-corrects, helping observers to recognize and rectify errors, as well as conveying the importance of accurate speech.

One pre-service teacher (ECH-L, personal interview, April 2, 2015) indicated that it was beneficial to hear the one native instructor consciously verbally correct her own speech;

"...it really made me think before I opened my mouth, and made me realize just how important it is to speak correctly in front of children. It also helped to know that I wasn't the only one, and that even somebody from the boonies could teach in college."

Bandura (1997) states additionally that the model's level of perseverance in the face of obstacles also influences efficacy development in observers. Models who display positive attitudes, a willingness to try different approaches and strategies, and who do not give up in the face of adversity instill a greater sense of efficacy and perseverance in others.

One pre-service teacher (ML-L, personal interview, April 17, 2015) found that observing instructors grapple with the day-to-day problems of teaching while maintaining a positive

attitude about eventually being able to solve those problems as encouraging to the pre-service teacher.

“You know, that spring semester where we had all that weather, and everybody was feeling so stressed – we didn’t know how to do some assignments because we hadn’t met and they were due, we forgot stuff in between because sometimes we wouldn’t have class for a week and a half, and you guys (the instructors) were so calm, and we just sat down with the course calendar and made adjustments and sometimes you changed an assignment to something we did in class, and we went back over things that weren’t clear – that really helped me. It took off a lot of stress that I was feeling, and it made me see that most of the problems could be handled by just calmly thinking it through.”

The ECH-H pre-service teacher (personal interview, March 28, 2015) talked about modeling by instructors that was not directly verbalized by the instructors. In all three programs, professionalism is stressed by instructors; discussions of professionalism were based on topics including confidentiality, professional behavior, working with colleagues, professional dress, modeling proper grammar and behavior for children in the classroom, and age-appropriate classroom management strategies.

This pre-service teacher (ECH-H, personal interview, March 28, 2015) stated:

“And that constant “look professional” thing – I mean, I don’t ever remember seeing any of you wearing jeans or anything, like you were always dressed nice and Dr. S. always wore her name tag. I think that was kind of modeling without you saying it out loud. You just did it and we saw that every day we were in class. I remember seeing Mrs. M. in Wal Mart one time and she had on jeans and it blew me away! It just didn’t even look like her!”

Conversely, the special education pre-service teachers had a different experience with modeling. As the special education courses were on-line, and were taught by instructors from the main campus, special education pre-service teachers on the campus under study were not able to physically “see” their instructors model specific teaching strategies.

One pre-service teacher (SPED-L, personal interview, April 3, 2015), when asked about opportunities to observe models, said, “...there were videos that we would watch.” Bandura

(1997) states that although a lot can be learned from computers, human teachers are necessary in order to build efficacy, and to find meaning in educational pursuits. Additionally, he notes that although technology allows for more educational opportunity, self-motivation and aspirations determine what is made of those opportunities. “Under self-managed instruction, the knowledge gap between wavering self-regulators and proficient self-regulators will widen...” (Bandura, 1997, p. 214).

Another special education pre-service teacher (SPED-M, personal interview, June 22, 2015) noted the issue related to the physical distance between the instructor and the pre-service teacher by saying “a lot of that stuff you can’t see it or learn about it because we didn’t have access on campus.” The opportunity to observe instructors modeling teaching behaviors was not possible due to being on two separate campuses, and the nature of the on-line course delivery.

SPED-H (personal interview, April 24, 2015) did note that in one class, students were required to do observation hours in a classroom.

“...you went in and completed just a little bit of observation like 10 hours or something. You would write about these different teaching models you saw in the classroom.”

Another special education pre-service teacher (SPED-M, personal interview, June 22, 2015) noted the same requirement for observation hours, “but still, I mean, not a whole lot.” Tschannen-Moran and McMaster (2009) note that merely watching a presenter may be only minimally effective at increasing efficacy beliefs as well as teaching skills. Additionally they state that simply being exposed to new knowledge does not increase efficacy; actual use of that knowledge does contribute to change in self-efficacy beliefs.

Based on pre-service teachers’ comments, modeling by instructors was experienced by those in the early childhood and mid-level programs. Specifically, observing instructors model different teaching strategies, hearing the thought processes of the model, observing the models’

reactions to challenges, and seeing professional behavior were points made in answer to the question regarding opportunities to observe models. Those in the special education program, conversely, related opportunities to observe models in videos and in some observation hours required for a class; they did not observe instructor models due to instruction in their coursework being offered on-line. However, Tschannen-Moran and McMaster (2009) make the point that some models provide vicarious experience through videos, but that if the vicarious experience is limited to watching only, it is not as effective in raising self-efficacy beliefs.

Modeling by peers: Modeling by peers was a second sub-theme that emerged in the discussion on modeling. Early childhood and mid-level preservice teachers noted the opportunity to observe peers performing teaching activities. Bandura (1997) states that seeing a model fail when using poor strategies builds perceived efficacy in observers, who believe that they possess better strategies. Seeing what has not worked for others builds the observer's self-confidence in his or her ability to find more suitable alternatives (Bandura, 1997). Individuals compare themselves to others who are in similar circumstances, such as work colleagues, classmates, or other similar situations. Observers who view people of differing characteristics succeed reasonably increase their own sense of self-efficacy (Bandura, 1997). Judgment against standards of how well others perform gives information to determine one's own rank and standing (Bandura, 1997). Schunk & Zimmerman (1997) state that perceived similarity between observer and model is an important source of information to judge appropriateness of actions and to develop expected outcomes based on those actions, and that observing others succeed at a task raises the self-efficacy beliefs of the observer. Learners acquire information by comparing their performance to that of others (Schunk & Zimmerman, 1997).

A pre-service teacher in the early childhood program (ECH-H, personal interview, March 28, 2015) stated,

“...it really helped me keep my self-esteem higher and it made me feel good about myself... because if I hadn’t have had the experience and the ability to teach in front of my peers first I wouldn’t have known what I needed to fix and I really wouldn’t have known what to expect.”

Another early childhood pre-service teacher cited the fact that the program required that they write lesson plans that they then taught in front of peers (ECH-M, personal interview, July 22, 2015), and stated that the chance to teach in front of their peers raised ...

“...my self-confidence – you know, it is much easier to make mistakes in front of your friends. And so we had lots of chances to make mistakes and then more chances to fix them.”

A mid-level pre-service teacher (ML-H, personal interview, May 8, 2015) described an episode in her classroom management class where students practiced their “teacher looks” together. She said,

“It was really cool. We got to see everybody else’s looks, and Dr. S. even did a couple for us so we could try them out. Not everybody was good at looking serious!”

When one of the special education pre-service teachers (SPED-H, personal interview, April 24, 2015) was asked if there had been any opportunity to teach to peers or observe peers teaching, her response was, “No. No.” Zimmerman makes the statement that “each person whose perspective is shared serves essentially as a model” (Zimmerman & Tsikalas, 2005, p.271). He further states that the strategies of those models are internalized, allowing the observer to find alternate ways to interpret and respond to events, and that when an observer views a model using a particular skill, he or she is encouraged to remember and apply skills they already know (Zimmerman and Ghozeil, 1974). Modeling by peers can serve the function of providing alternate strategies that are known but not necessarily recalled at the moment, and provide

alternatives for responding to events. Additionally, similarity between observer and model within a group of peers, along with seeing others succeed, raises self-efficacy beliefs.

Peer modeling was experienced by both early childhood and mid-level pre-service teachers in their course work. Specifically, it was commented by one pre-service teacher that the ability to observe peers helped raise her self-esteem, and provided the opportunity to recognize where improvement needed to be made.

Practice with feedback

The second area of discussion centered on opportunities to practice teaching skills and receiving feedback on those practice episodes. Again, two sub-themes emerged in the data analysis, with a distinction made between feedback from instructors and feedback from peers.

Practice with feedback from instructors: Bandura (1997) describes verbal persuasion as a means of strengthening an individual's belief that they are capable of achieving goals. Feedback that is positive yet realistic can boost self-efficacy, and the more feedback raises self-efficacy beliefs, the greater the chance that the learner will persist in his or her efforts. The more believable the feedback from a source who is viewed as skilled in the activity, the more effective it is in raising efficacy beliefs (Bandura, 1997).

Zimmerman (2013) describes the need for the learner to have performance experiences in order to fully internalize the skill. He states that modeling and social reinforcement (feedback) improve performance, allowing the model to gradually reduce support. The learner's motivation to perform at higher levels is sustained by direct modeling or feedback from a model or instructor.

One mid-level pre-service teacher (ML-M, personal interview, June 17, 2015) commented on feedback received from instructors by saying,

“This is the truth, I have never had an instance where I either taught a lesson or I turned an assignment in, even if I did something wrong and there was something I needed to fix, they were not, they didn’t not say something positive about it.”

Bandura (1997) states that evaluations that are directed towards progress build self-efficacy beliefs in personal capabilities; the impact of these evaluations depends in part on the credibility and expertise of the individual providing the positive verbal persuasion.

A mid-level pre-service teacher (ML-L, personal interview, April 17, 2015) recounted a teaching episode that did not go according to plan; the class was inattentive and exhibiting some inappropriate classroom behaviors. The feedback from the instructor concentrated on the pre-service teacher’s attempts to redirect class attention by modifying the teaching strategies; the pre-service teacher stated,

“...the fact that I did try to stop revise and edit showed that I was learning what I was needing to learn as a teacher. And I was upset but then when she said that it made me feel so much better and I didn’t feel like I was a complete failure.”

The ECH-H (personal interview, March 28, 2015) student talked about her field experience and the conference with her university supervisor after being observed in a teaching episode by describing the feedback she received by saying,

“...you would talk about your experiences and ways to do better next week.”

Lee, Patterson, and Vega (2011) state that university field supervisors are able to assist interns by reinforcing good practices, and by providing suggestions for change and/or improvement. The supervisor also needs to establish a relationship with the school district mentors in order to allow the pre-service teacher to have maximum support while in field experiences. Tschannen-Moran and McMaster (2009) cite the importance of the mastery experience with individualized verbal feedback as necessary for raising self-efficacy beliefs while supporting implementation of teaching strategies.

The special education pre-service teachers did not identify any opportunities to practice teaching skills with feedback from instructors until they got to their final semester, during the internship field experience.

One special education pre-service teacher (SPED-M, personal interview, June 22, 2015) noted, “We didn’t really do any teaching in our classes.” She went on to say,

“Probably the first time I ever had any kind of feedback was in my special ed placement. The teacher and I talked, and then my university supervisor had to evaluate me, so I got feedback there. But even that was hard sometimes, with the teacher I mean. It was resource room, so students were coming and going all day long, so sometimes I would take one and Mrs. ____ would take another, so she wasn’t really able to watch what I was doing.”

None of the special education pre-service teachers specifically addressed whether they felt that lack of feedback negatively influenced their self-efficacy beliefs, although two (SPED-M, personal interview, June 22, 2015, and SPED-L, personal interview, April 3, 2015) stated that they wished they had more opportunities to practice specific teaching strategies and receive feedback prior to internship. SPED-H (personal interview, April 24, 2015) noted,

“It was just strictly us going out there and knowing what the requirement was. What we needed to do. Um, there was no supervision, there was even no opportunity to work with the child.”

Instructor feedback provided pre-service teachers with recognition of growth. That feedback took place both in the classroom and in field experiences and allowed the pre-service teachers to receive a positive and realistic evaluation of their teaching episodes from sources viewed as accomplished and knowledgeable in the field of teaching. Mastery experiences accompanied by feedback helps to raise self-efficacy beliefs, as discussed by the pre-service teachers noting that feedback raised self-confidence levels.

Practice with feedback from peers: Tschannen-Moran and McMaster (2009) reiterate Bandura’s premise that the greater the similarity between observer and model, the more

persuasive are beliefs in one's ability to master similar activities. They state that although initial performance episodes may cause nervous anticipation, being able to try a strategy in a supportive, encouraging setting reduces feelings of anxiety, nervousness, and fear. Schunk and Zimmerman (1997) state that one's similarity to the model is an important informational source for evaluating one's performance levels as well as efficacy. Seeing others who are similar succeed can raise self-efficacy beliefs (a belief that "if others can succeed, so can I").

One early childhood pre-service teacher (ECH-M, personal interview, July 22, 2015) described feedback received from peers in in-class teaching episodes by saying,

"...they tell me what I need to work on, but they were extremely uplifting. Like, I could totally tell that we're P4 because it's like for every negative comment you might have to say that a child needs three or four positive, that's like they are, in the lessons, with each other."

Another pre-service teacher (ECH-H, personal interview, March 28, 2015) noted,

"...if I hadn't have had the personal relationships and if I wouldn't have had the cohort that I had I don't feel like I would be as successful and feel at all, I don't feel like I would have gotten the information that I need or the experience that I needed before going out [in field]."

A mid-level pre-service teacher (ML-H, personal interview, May 8, 2015) stated,

"We learned, you know, from each other, by watching each other and then talking about what was good and what was not so good. That helped."

Bandura states that "a vast amount of social learning occurs among peers....because of similarities in age and experiences, age-mates provide the most informative points of reference for comparative efficacy appraisal and verification" (Bandura, 1997, p. 173). The ability to practice skills in front of peers with similar characteristics and to receive feedback, both positive and negative, about this performance from those same peers were cited as building self-efficacy in the pre-service teachers who were interviewed.

Bandura (1997) states the most informative form of practice with feedback that provides the greatest improvement is in the form of corrective modeling, where the skills that are not adequately learned are modeled by those who are proficient. Those skills are then practiced until mastery is achieved. One interviewee (ML-L, personal interview, April 17, 2015) described this process in her teacher education program courses.

“After we did our lessons in class, our teachers and our classmates both told us what they thought we did well and where we needed to improve. And it was kind of interesting that you got, you know, different things from different people? Like some people really concentrated on timing and others paid more attention to grammar and like K. always told us how many times we used “ya’all.” But then you watched other people and sort of made mental notes about do this, don’t do that, and then you concentrated on the don’t do that stuff even more the next time. Plus you got to watch how other people did it better than you did, so you got a better idea of what it should look like.”

The special education pre-service teachers did not report any feedback from peers, as they did not have the opportunity to teach in front of their peers. The only feedback they noted was from university and field supervisors during internship placements. Although there was not a statistical difference on the TSES between means of the special education and early childhood/mid-level pre-service teacher groups, the mean of the special education group was the lowest of the three.

Reflective practice

Reflection can be defined as a deliberate thought process that requires consideration of meaning and connections between learning and experience (Mackay and Tymon, 2013).

Reflection encourages deeper learning and requires consideration of personal characteristics and assumptions; it examines theoretical frameworks and may lead to changes in future actions (Mackay & Tymon, 2013). Zimmerman (2002) identifies two classes of self-reflection: self-judgment, referring to comparisons of performance against an identified standard, and self-reaction, referring to self-satisfaction and positive feelings about performance. Self-reflections

from previous events influence thought processes toward future events. Self-regulatory processes such as self-evaluative reflection can be learned from models and teachers (Zimmerman, 2002).

The ML-H (personal interview, May 8, 2015) pre-service teacher described the reflective process over the course of the program:

“When we started out as juniors, like in the tech class we had to do a reflection on a lot of the assignments, and we had no clue what we were doing. We had some guiding questions but those seemed kind of lame and we really didn’t get the point. But it seemed like as we kept going, it made more sense, like when we started teaching lesson plans in class and then we had to think about how it went. And then we started doing different kinds of reflection like over that big integrated teaming unit and over group activities and looking at the process and how it related to us. And we got to the point where we could throw out the guiding questions and just think about what we did.”

Mackay and Tymon support this view when they state that “critical reflection appears obscure to many learners” (Mackay & Tymon, 2013, p. 645). They state that the instructor/lecturer has a responsibility to both teach and demonstrate reflection. Mackay and Tymon (Mackay & Tymon, 2013) defined four levels of the reflective process: Level 1 relates to the minimal level of looking at classroom management as a means of limiting negative occurrences; Level 2 is reflection in the context of changing instructional strategies to attempt better teaching but still maintaining control; Level 3 is more collaborative in nature and uses authoritative sources to uphold positions; Level 4 is the point in the reflective process where the emphasis shifts from “how” we are teaching to “what” and “why” (Mackay & Tymon, 2013). The comment noted above by ML-H (personal interview, May 8, 2015) demonstrates the pre-service teacher’s movement through at least the first three levels of reflection as defined by Mackay and Tymon (Mackay & Tymon, 2013).

Level 1 of the reflective process was described by the SPED-H (personal interview, April 24, 2015) pre-service teacher.

“In the beginning of field and even in internship, I really felt like if I just kept them all in their seats and no one got hurt, I was ok. All I could think about was classroom management – I kept coming up with anchor charts and behavior charts and things to make the kids behave.”

This is illustrative of Mackay and Tymon’s Level 1; reflection takes place, but only at the superficial level of overt behavior management issues.

The ML-M (personal interview, June 17, 2015) pre-service teacher echoed that thought by saying,

“...the thing that scared me most was could I control the class. And so I thought a lot about ways to keep kids in check – not that engagement and on-task behaviors weren’t part of that, but they were just tools to control them.”

The ML-M (personal interview, June 17, 2015) pre-service teacher went on to say,

“Once I felt confident that I could control the class, I had more energy to think about what I was teaching. At first, everything was direct instruction because it made me feel safe – I was in charge and that was that. I did start trying some new things, but as soon as I felt like things were getting out of control I went back to lecturing. I guess I wasn’t obsessing over controlling them anymore, but it was still right in the front of me all the time.”

This comment is an illustration of Level 2; the pre-service teacher was willing to try additional instructional strategies, but classroom control was still the primary focus of teaching episodes.

The ECH-M (personal interview, July 22, 2015) pre-service teacher also commented on feeling the need to maintain control even while attempting different strategies.

“I was doing all the talking, and I know you guys said not to do that, to let kids lead, but I was afraid. If something happened like someone got hurt or another teacher had to come in and help or it got so noisy the principal came in – I was responsible. I remember the first time I tried groups – it got loud and I got worried. Looking back on it now, it wasn’t so loud – but it sure seemed that way to me. I realize now that every time you do something new, the students need to learn a new procedure and that gets loud and messy. It doesn’t scare me now, but it sure did then.”

Again, the need to maintain control became the purpose of the reflective activity – how to try something different while executing good classroom management skills was the focus.

Level 3 of the reflective process was perhaps expressed most eloquently by the SPED-M (personal interview, June 22, 2015) pre-service teacher.

“I found myself going back to the IEP’s over and over again. I would be thinking about what I needed to do with each student, and the IEP gave me a feeling of security. Every day when I sat down [in internship] to write my daily reflection, I started out talking about what the IEP said, and what the teacher said, and as long as I was following that IEP I figured everything was ok. There was no, oh, the student needed this or I thought of a different way of presenting the material, it was just do what authority told me to do. And that authority was the IEP and the teacher.”

This pre-service teacher’s position was that as long as the authoritative requirements were being met, and her reflections indicated that she was following those requirements, she was performing as expected. Evidence of increased collaboration is illustrated by the pre-service teacher consulting with the classroom teacher; however, support by the “authority” and increased collaboration are still a control issue, with the locus of that control changing from the teacher/lecturer to the authority.

All of the pre-service teachers who discussed reflection at the highest of Mackay and Tymon’s four levels indicated that this level was not reached until the internship period, and often not until the second internship placement (the last eight weeks of the internship semester). All three of the H designated pre-service teachers (one from each program) and two of the M designated pre-service teachers (from the mid-level and early childhood programs) specifically referred to the change in the characteristics and depth of their reflections during the internship placement.

The ML-H (personal interview, May 8, 2015) pre-service teacher stated it this way:

“Remember when you told us that at some point we would start thinking like teachers and not students? You were right. At the end of a day during internship, I started thinking

*about what the kids had learned that day, and it hit me – I wasn't thinking about what I did but about what **they** did."*

The SPED-H (personal interview, April 24, 2015) pre-service teacher noted,

"...I realized I wasn't thinking so much about being afraid of doing the wrong thing and was concentrating more on what the student needed. I thought about that a lot – how what was really important was what the student got out of it, not how I felt. If the child learned something, I was doing something right."

The ECH-H (personal interview, March 28, 2015) pre-service teacher said, "...it clicked one day, and I was like, I get it." She went on to say that it was not until the start of her second internship placement that she realized her reflections "were not about me so much anymore." Her focus had shifted from the "how" to teach to the "what" and "why" of teaching. The ML-M (personal interview, June 17, 2015) pre-service teacher and ECH-M (personal interview, July 22, 2015) pre-service teacher also noted that they specifically noticed a change in their reflective writings, and that the change was a move away from a theme of keeping control to a theme of planning and teaching for student needs.

The ECH-L (personal interview, April 2, 2015) pre-service teacher discussed the informative facet of reflection as defined by Kaye (Kaye, 2014). She stated,

"I guess at first I didn't know what reflection was. It was just one more page at the end of an assignment. But when I really started thinking about what I was doing, and how I was doing it, I had a better handle on where I needed to improve."

Being able to reflect on actions provided a way for this pre-service teacher to measure personal self-efficacy by making the action personally relevant to improving teaching skills.

The ML-M (personal interview, June 17, 2015) pre-service teacher found that reflection helped him to better understand his personal strengths and weaknesses; he related that

"Now I see the reason for all the reflections you guys made us write. It really makes you sit down and look at yourself, and I was so busy making lesson plans I probably wouldn't have done that if you didn't make us."

Reflection creates a moment of “pause” when action is stopped so that thinking about that action can occur.

The ECH-H (personal interview, March 28, 2015) pre-service teacher talked about Kaye’s (Kaye, 2014) generative purpose of reflection. In discussing a lesson that had not gone according to plan, she said,

“You know, even though I didn’t get the problem fixed I continued to try to revise and edit, you know, just try to fix the problem, using all of the things I learned in class, using all the different methods and ways and so that made me feel a little good about it....I knew I had to come up with something different.”

ML-L (personal interview, April 17, 2015) discussed the generative purpose of reflection when considering post-observation conferences with her university supervisor.

“I thought at first when you guys asked ‘what would you do different’ that it was a criticism that meant I had done something wrong. But then I realized that it was a way of making me look at a lesson and pick it apart so I could tweak the little things.”

In both cases, reflective activities served the purpose of causing the pre-service teacher to consider alternatives that might have resulted in different, and hopefully improved, outcomes.

The transformative purpose of reflection as outlined by Kaye (Kaye, 2014) also was noted by ML-H (personal interview, May 8, 2015). She stated that reflection

“...made me see how far I’d come. You know, you get so wrapped up in homework and assignments and just life in general, and sometimes you just feel overwhelmed and wonder if you should go be a Wal-Mart greeter. But then, you stop and think about all you know and what you’ve learned, and it makes you feel good about what you’re doing.”

In this case, reflection provided the opportunity to evaluate personal growth; the positive nature of that growth increased self-efficacy beliefs.

The SPED-M (personal interview, June 22, 2015) and SPED-L, personal interview, April 3, 2015) pre-service interns did not specifically discuss if they noted any change in their reflective practices; though this might be expected in their course work as a result of not having

practice teaching episodes with peers, they also did not recognize change during the internship semester. Although no cause and effect can be determined on the basis of these interviews, it is notable that the lowest scoring pre-service teachers on the efficacy scale were also those who did not have the opportunity to observe models, or practice teaching skills with feedback from instructors and/or peers.

Independent practice of teaching behaviors

Bandura (1997) states that "...enactive mastery experiences are the most influential source of efficacy information...." (p. 80). Successful mastery experiences build belief in personal self-efficacy. While failure can be detrimental to one's sense of self-efficacy, experiences in overcoming obstacles helps to build a resilient sense of efficacy. Bandura (1997) additionally states that stronger efficacy beliefs are built through enactive mastery experiences, than influences that are dependent solely on vicarious experience or verbal instruction. Perception of relative progress even in the face of setbacks raises self-efficacy beliefs (Bandura, 1977). Negative occurrences that are mastered independently under varied circumstances are more likely to increase self-efficacy beliefs (Bandura, 1977).

Schunk and Zimmerman (1997) describe the highest level of self-regulatory competence as one at which the learner is able to initiate strategies, make modifications when necessary, and maintain self-motivation by self-efficacy perceptions of success.

The final *a priori* question asked pre-service teachers to describe opportunities they had to practice teaching behaviors independently. Responses were related directly to both the diversity experience teaching episodes, and fall field placements and internship.

The SPED-H (personal interview, April 24, 2015) pre-service teacher stated that her internship placement was the only time she actually worked with special education students; her

previous placements in the fall semester were in regular classroom settings. When asked what impact not having more experience teaching with special needs students had, she replied, “It scares us.” She went on to describe that the fear was not so much of the children, but the logistics of fulfilling paperwork requirements and being able to accurately create an Individualized Education Plan (IEP) for each student.

“Have you actually created an IEP? No. The thing was, it was discussed from....we understand the goal mastery but we’ve never actually even done even a pretend IEP by ourselves.”

She expressed concerns about creating an IEP without a computer program designed for creating those forms. Lacking mastery experiences in a crucial area of special education teaching did not contribute to self-efficacy beliefs; in her words, it is “scary.” The word “scary” was used in the context of having only limited experience teaching special needs students; Tschannen-Moran and McMaster (2009) state that the test of teaching ability is present only in the real setting; self-efficacy beliefs support implementation of new strategies, and the implementation becomes a mastery experience during which self-efficacy beliefs are increased.

Tschannen-Moran et al. (1998) make a distinction between “general teaching efficacy (GTE)” and “personal teaching efficacy (PTE).” They define GTE as beliefs relating to specific tasks, while PTE relates to self-perceptions of personal teaching competence. They find that pre-service teachers with higher PTE are rated more favorably on lesson presentation, classroom management, and questioning skills while in internship placements. General teaching efficacy, belief about the task itself, is more likely to increase during course work, when there is more exposure to vicarious learning and positive feedback. Personal teaching efficacy is more likely to increase as a result of teaching experiences (Tschannen-Moran et al., 1998).

The ML-L (personal interview, April 17, 2015) pre-service teacher noted,

“...being able to practice in class made me feel more sure of myself once I got into field – I even got to teach a couple of the same lessons in field, just lucky I guess, so I really felt good about those.”

This comment illustrates growth in both personal and general teaching efficacy; the classroom experience provided the pre-service teacher with a chance to build general self-efficacy, and being able to teach those same lessons once in the field setting allowed growth in personal self-efficacy. Conversely, not having the opportunity to build general self-efficacy negatively impacted one pre-service teacher’s feelings about her field performance.

The SPED-L (personal interview, April 3, 2015) pre-service teacher said,

“I was just feeling my way. It was like I never exactly knew if I was on the right track, and I was real uncertain. I think the kids could tell too – I always felt like they were waiting for me to slip up and not do what was their routine.”

The special education pre-service teachers had virtually no opportunities to observe models or to practice teaching skills with feedback prior to the internship experience.

The ML-H (personal interview, May 8, 2015) pre-service teacher noted that practice with feedback in coursework provided a foundation for building skills in field and internship placements.

“I think that when, you know, it was like we had a lot of chances to practice in our classes. Like Mrs. _____’s class, we did the strategies and in the models class we made lesson plans for those models and got to teach some of them. And then when I got into field, I was like, oh yeah, I can do this – I already did it once so I can do it again.”

Bandura (1997) states that building a sense of self-efficacy is not the result of merely repeating programmed behaviors. It is, instead, a result of acquiring the necessary skills to perform a task, and managing changing circumstances. Simply having knowledge and skills is not enough to produce satisfactory results if the individual does not have the belief in his or her ability to perform those tasks. Self-efficacy building is cyclical in nature; successfully

performing learned skills builds self-efficacy beliefs; higher self-efficacy beliefs allow the learner to try new strategies or tasks; success builds self-efficacy beliefs.

The ECH-M (personal interview, July 22, 2015) pre-service teacher stated,

“It was nerve wracking at first, going out in field, but I kept thinking that I did ok in my diversity placement, so I could probably do ok in field. Then when I got to internship I thought, ok, this is just like field only longer and harder because at some point it is all going to be on you. But, it was...I just kept talking to myself and saying I knew I could do it because I already did it once.”

This echoes the ML-H (personal interview, May 8, 2015) pre-service teacher’s statement; the initial success led to increased self-efficacy beliefs, performing successfully in part because of those beliefs, leading to increased self-efficacy.

The ECH-H (personal interview, March 28, 2015) pre-service teacher summed up the field experience structure.

“The way it’s laid out is totally perfect. Having to go start small, you just go one or two days one week or two weeks and that’s it, you have a little bit of experience for the next placement which is a little bit longer and then the next and I really like that....”

Although Zimmerman (2013) states that the steps in building self-efficacy and becoming a self-regulated learner do not necessarily need to be followed in sequence, doing so is more effective.

Additional emergent themes

Two additional themes emerged from the interview phase of the research. “Cohort support” and “knowing faculty” were both themes identified through case analysis. Coding indicated that at least one member of each program discussed these themes as being important to them in their progress through the teacher education program and building personal self-efficacy beliefs.

Bandura (1997) stated that schools are interactive social systems in which teachers operate, and that efficacy enhancement must be a factor within the structure of the school. In efficacious schools, there exist high expectations for achievement, and learning activities are structured in such a way that they lead to mastery. Expressions of teacher efficacy within school settings create a climate for success; high levels of efficacy in instructors promote high levels of academic achievement.

Cohort support: The ML-H (personal interview, May 8, 2015) pre-service teacher stated, “I would say I was extremely fortunate and lucky to have the cohort that I had.” When probed as to why the pre-service teacher felt fortunate, she responded,

“We were there for each other. We helped each other. We didn’t all like each other all the time, and there were a couple of people who never really fit in, but overall we were really tight.”

The ECH-H (personal interview, March 28, 2015) pre-service teacher described how feedback from her peers sometimes related to areas for improvement, but ...

“...they might tell me that but at the same time they’re going to tell me there were ways I did the right thing. There was always something positive.”

The ECH-L (personal interview, April 2, 2015) pre-service teacher commented about her cohort: “they gave me the advice that I needed.”

The SPED-M (personal interview, June 22, 2015) pre-service teacher noted,

“...we tried to support each other as much as we could. Like H. always could tell us websites that we could find information and sometimes you just needed somebody to tell you it would all be ok.”

Members of both the mid-level and the early childhood programs talked about how the cohort grew closer as they progressed through the program. ML-L (personal interview, April 17, 2015) related instances in which the group got together outside of the classroom.

“We went out to eat at lunch as a whole group quite a bit. Not so much at first, but as the semester went on we really tried to get together as a group. By senior year, we were even doing it more. Heck, we even took a group float trip the summer between junior and senior year. Not everybody could make it, but everybody was invited and we had a blast. Those were times to just be together and relax and talk about stuff that wasn’t school. Like we talked about our kids and spouses with each other and we got to know each other really well.”

The ECH-L (personal interview, April 2, 2015) pre-service teacher also related meals shared within the cohort.

“We used to bring food to class all the time. It seemed like we were always eating! But it was fun and we had birthday parties and when ____ got engaged we celebrated that, and it was just all fun. It was hard to say goodbye at graduation, but I know we will stay in touch.”

Bandura (1997) discusses collective efficacy by defining two measures of “team” efficacy. The personal version related to the aggregation of individual efficacy; the group version evaluates beliefs about efficacy as a whole. Bandura states, “Group cohesion includes both an interpersonal element, such as mutual liking and affiliation, and an aspirational element encompassing a collective sense of efficacy and shared purpose” (Bandura, 1997, p. 404). In the case of pre-service teachers within the cohort system, the personal relationships as well as sharing a common goal (becoming a licensed teacher) contribute to the group’s collective efficacy. Self-appraisals of capabilities are closely related to peer appraisals (Bandura, 1997). Successes modeled by peers boost self-efficacy beliefs (Bandura, 1997).

Knowing faculty: In a brief article, Angela Lumpkin (2007) identified six essential behaviors exhibited by teachers with integrity; teaching ethically requires the interaction of six behaviors that lead to positive teacher-learner relationships. Those six behaviors are caring, setting high standards, providing challenging learning experiences, organizing and managing classes to facilitate learning, creating a student-centered classroom culture, and reflection. Caring teachers provide both emotional and academic support to students, as well as building trust and

exhibiting respect. High standards include providing constructive feedback as well as allowing students to gain mastery of realistic goals. Challenging learning experiences engage students; teachers model teaching behaviors using a variety of approaches and adaptations of instructional style to meet student needs. A well-organized and managed classroom maximizes each student's learning potential, and includes clear explanations of how students will be evaluated. A student-centered classroom structure puts emphasis on learning as a collaborative process, with students and teachers joining together. Lastly, reflection is based on thinking about how to most effectively teach students in order to achieve desired outcomes.

The SPED-H (personal interview, April 24, 2015) pre-service teacher noted that even though contact was mainly through email with her instructors, she had still built and maintained a relationship with one of her on-line instructors.

"Dr. __, her and I have kept in touch just for different things but I've had to ask throughout and she's helped me. I have called her a couple of times and she has been helpful" (caring).

The ECH-L (personal interview, April 2, 2015) pre-service teacher related that she appreciated the fact that she had personal cell phone numbers for all of her instructors.

"And once we got to know every single one of our instructors, it was like, it was so easy to call any of you. Like I knew if I couldn't call you I could call Mrs. M. If you can't get somebody just call the next one. It was so much easier as far as not stressing myself to death, you know?" (caring).

ECH-H (personal interview, March 28, 2015) cited the relationship with instructors as contributing to her self-efficacy beliefs;

"...being able to have a personal relationship with my teachers as well as professional I feel like, I feel like that's why I'm so confident. You guys expected a lot, but you also knew we could do it" (high expectations, challenging learning experiences).

The ECH-L (personal interview, April 2, 2015) pre-service teacher noted that she was well-aware of her own self-doubts, and felt that having a relationship with instructors helped to boost her confidence.

“You know, if you were nervous or not sure of yourself, it was like we trusted you all to get us over that. We always felt like you cared about us and wanted us to succeed. I’m just an anxious person, so to be able to make a personal connection with the instructors has been extremely helpful” (caring).

The ML-L (personal interview, April 17, 2015) pre-service teacher stated,

“If I hadn’t have had the personal relationships with my instructors and if I wouldn’t have had the cohort that I had I don’t feel like I would be as successful” (collaborative student-centered culture).

The ECH-H (personal interview, March 28, 2015) pre-service teacher described the program layout:

“...and they started out by like, every other day or two days of the week you would go out and then you would come back in class and you would talk about your experiences and ways to better next week which prepared me for field, which you have for three weeks and then in school for three weeks, which really prepared me. It was like stepping stones. The perfect layout” (organization to facilitate learning).

The SPED-L (personal interview, April 3, 2015) pre-service teacher, when asked about communication with her on-line instructors, said, “Never had an issue with any instructor that we had. We could always communicate.”

Pre-service teachers from all three programs identified cohort support and knowing instructors as positive factors in building their personal self-efficacy in addition to the model identified by Zimmerman. Those factors served as enhancements to the structure of the programs in early childhood and mid-level education; for the special education majors, cohort support was limited and knowing instructors was based on ability to communicate when needed, although both themes were relayed as positive.

Other comments

Pre-service teachers offered comments about personal preference for face to face versus seated course delivery. Comments reflected differences in preference based on both personal learning style and life situation. Reaching all students based on personal learning style is a concept embedded into the programs, so pre-service teachers are aware of not only differences in their future students' learning styles, but also have an understanding of their own personal learning style.

The ECH-H (personal interview, March 28, 2015) pre-service teacher related,

“And see, honestly for me, I’ve always been the kind of student that being in the face to face seated class, that was probably the best thing that could have ever happened for me.”

She went on to explain that for her to learn, the one-on-one approach with hands-on activities were most effective, and that just reading information from a text did not “stick” with her. Her personal learning style was not met through on-line instruction.

The ECH-L (personal interview, April 2, 2015) pre-service teacher related that hearing instructor experiences made her feel that she did a better job in the classroom. She said that her instructors relaying a variety of “...experiences overall, whether it be with parents or with students, communicating with them, communicating with parents, behavior management, anger management...” built her confidence level. She stated, *“I don’t feel like I would be near as good in the field had it not have been for the teachers telling us certain experiences they had had.”*

The ML-L (personal interview, April 17, 2015) pre-service teacher said, *“Being able to get up in a classroom and being able to teach my lessons in front of my peers really helped me succeed in the classroom.”*

She indicated that the practice teaching episodes in front of peers before going into a classroom gave her time to build her confidence; “I don’t like to be in front of people.”

The SPED-M (personal interview, June 22, 2015) pre-service teacher said,

“When it was purely on-line, ... um, we struggled with that just trying to keep it together. We didn’t have, like a way to really talk with the teacher so we had to figure it out ourselves.”

She too noted that her personal preference was for face to face instruction, but she wanted the special education degree enough to “struggle” through the on-line program.

The ML-L (personal interview, April 17, 2015) pre-service teacher stated that, *“I know in my heart that I would not have been able to succeed to my full potential through an on-line course, because – I don’t feel like I would have been prepared.”*

She too noted that her personal learning style enabled her to learn more in a face-to-face setting.

The ML-M (personal interview, June 17, 2015) pre-service teacher talked about his difficulty in relating to classmates in the on-line environment. He described his feelings; *“I didn’t have a face, so I couldn’t really tell what kind of person they were, and for me that’s a big deal.”*

In the context of life situations, the SPED-H (personal interview, April 24, 2015) pre-service teacher indicated a preference for on-line course delivery; when asked her personal preference between face to face and on-line courses, she replied, *“On-line. Just because I’m a nontraditional student with a family. I would want that. It was like personally on-line has really helped me find some flexibility.”*

She defined herself as a “self-motivator,” not having experienced issues with keeping up with the coursework. She did add, “I’m only confident because of my personal situation I think.” However, when probed about her perceived abilities to work with children with disabilities other than that of her daughter (autism), she replied,

“I would have to go to a professional involved in that to help me. And honestly I mean I’m resourceful and I can look up things but as far as knowing what to do for that child – the way it was relayed to us is that they would have basically they would have a physician for the issue and a physician would have contacts in special ed.”

She indicated that her on-line courses did not give her specific skills and strategies for working with a variety of learning issues experienced by special needs students.

The ML-H (personal interview, May 8, 2015) pre-service teacher had related a time in one of her face to face courses when the cohort all practiced their “teacher looks.” Her comment about that episode ended with a question: “How could you do that on-line?” Although she appreciated the convenience and flexibility of on-line courses, she stated that, *“I learned the most from being in a classroom with other people. That is how it is going to be in my teaching career – why would I want anything different in school?”*

Summary of key points – pre-service teachers

For questions pertaining specifically to Bandura’s self-efficacy building process and Zimmerman’s four step model in building efficacy and becoming a self-regulated learner, there were differences in what was relayed in interviews with pre-service teachers.

Observation of models, in Zimmerman’s (Zimmerman & Kitsantas, 1996) four step model in building self-efficacy was reported by pre-service teachers in all three programs, with differences between early childhood/mid-level pre-service teachers and those in the special education program. Both early childhood and mid-level pre-service teachers noted modeling by both instructors and peers. Special education pre-service teachers, conversely, mentioned observations only through video mode, while not having access to instructor or peer observation in special education on-line classes. There was some opportunity through observation hours in classrooms to view models, but the special education pre-service teachers did not have the opportunity to see instructors model teaching strategies or techniques. Tschannen-Moran and

McMaster (2009) point out that watching models through videos only has limited effectiveness in raising self-efficacy beliefs.

As with instructor modeling, the ability to observe peers was available to both early childhood and mid-level pre-service teachers. Schunk and Zimmerman (Schunk and Zimmerman, 1997) make the point that learning occurs when the learner is able to compare personal performance to that of others, preferably others who have similar characteristics. Peer observation allows the observer to rank his or her own performance compared to others (Bandura, 1997).

There was a distinct difference between early childhood/mid-level pre-service teachers, and special education pre-service teachers, in the area of ability to practice teaching behaviors with feedback. Bandura (1997) stated that positive, realistic feedback raises self-efficacy, which results in the learner demonstrating more persistence in his or her effort. The more skilled the source of the feedback, the more effective that feedback is in raising efficacy beliefs. Zimmerman (2013) states that in order to fully internalize a skill, performance experiences with social reinforcement are necessary. Tschannen-Moran and McMaster (2009) find that individualized feedback is a necessity. However, the special education pre-service teachers did not relate that they had any opportunities to practice teaching skills and receive feedback until their field and internship experiences; no chance to perform strategies and techniques of special education was provided during the process of completing course work.

The pre-service teachers who scored “high” and “medium” on the self-efficacy scale described the change in their reflective skills through the four levels outlined by Mackay and Tymon (2013), and noted that reflection helped them to identify and document personal growth, as well as shift focus from teaching activities to the learning outcomes for their students. Those

who scored “low” on the self-efficacy scale, regardless of program, did not specify any change in their reflective practices. Pre-service teachers did note that the progression in reflective practice did not come to full fruition until the internship semester, especially the second internship placement; at this point, reflection on personal growth and improvement in learner outcomes built self-efficacy beliefs in pre-service teachers.

The sources of information that allow an individual to inform efficacy beliefs are enactive mastery experiences, according to Bandura (1997). Stronger efficacy beliefs are created by experiencing those mastery experiences than through vicarious experience or verbal instruction and/or feedback (Bandura, 1997). The ability to initiate actions, make modifications, and maintain motivation is the highest level of self-regulatory competence, according to Schunk and Zimmerman (1997). Bandura (1997) echoes this when he states that self-efficacy does not result from imitating observed, programmed behaviors, but instead from gaining the necessary skills for task performance while managing changing environmental circumstances.

Both early childhood and mid-level pre-service teachers discussed the progression from course work that required teaching before their peers to teaching activities during the field and internship placements. They described the feeling that teaching in front of peers (practice with feedback) provided them with self-efficacy beliefs that enabled them to go into the field and internship experiences with the belief that they could “do it again” because they had already successfully completed the activity before. By the point in time that pre-service teachers were in field and internship experience, they had the self-efficacy beliefs that gave them the confidence to tackle the teaching experience. Tschannen-Moran and McMaster (2009) believe that only in a real classroom can teaching ability be tested; trying new strategies and procedures are

underpinned by self-efficacy beliefs, which then become mastery experiences that further build self-efficacy.

Tschannen-Moran et al. (1998) state that teaching efficacy increases as a result of teaching experiences. Unlike the early childhood and mid-level pre-service teachers, the special education pre-service teachers did not have the opportunity to either observe effective models or practice with feedback prior to the field and internship experience. Their scores on the efficacy instrument reflected a lesser degree of self-efficacy beliefs than either the early childhood or mid-level pre-service teachers.

Faculty – Qualitative Results – Interviews

Two faculty members were interviewed. The questions asked of these two faculty members in semi-standardized interviews were as follows:

1. How do you see competent models being available in face-to-face courses?
on-line delivery?
2. How are pre-service teachers provided with opportunities to practice teaching behaviors in the different types of course delivery?
3. How is feedback provided in face to face and on-line courses?
4. How is reflection incorporated into the course delivery model, face to face or on-line?
5. How are face to face and on-line courses designed to allow pre-service teachers to move from practice to independent behavior?

Social cognitive theory as Bandura (1997) outlines it is a multifaceted approach to promoting and supporting learning. Guided mastery is the basis for this. In this approach, modeling is used as a means of conveying knowledge and strategies in steps; opportunities are

provided for practice under supervision; social and verbal persuasion is gradually reduced as competencies increase; mastery experiences strengthen a sense of personal efficacy. Questions asked of faculty members relate specifically to the steps outlined in Zimmerman's model (Zimmerman & Kitsantas, 1996) for development of self-efficacy, and their responses are included to supplement and enrich the responses of the pre-service teacher interviewees.

These two instructors were chosen because of their opposing experiences in teaching education courses through different course delivery methods. S. has not taught anything besides seated courses through choice (as a tenured professor she has that option); K. teaches a variety as required by department scheduling and student need.

In response to the question concerning modeling in face to face and on-line course delivery, S. stated that in face to face courses, instructors and fellow classmates both served as models through a variety of means, including teaching episodes, discussions, and individual and group projects. She stated, *"I am convinced that even if these models are not especially 'competent' that they instruct. They serve as key examples of real life to students [pre-service teachers]."*

She went on to state that the physical interaction feature of teaching is lacking in the on-line course delivery mode, making it less teacher-oriented and more isolated learning. She concluded, *"...nothing replaces actual human interaction face-to-face."*

K. feels that there are "great" models available in both modes of course delivery, and that the quality of modeling made available to pre-service teacher is dependent on the instructor's willingness to re-teach when necessary and assist the pre-service teachers. She did state that the opportunity to present education students with modeling experiences was more possible in the face-to-face courses than through on-line delivery.

In response to the second question asking about opportunities to practice teaching behaviors, K. said that while in on-line delivery there were opportunities to present to peers and instructors, those opportunities were limited to videoing personal teaching practice episodes. She expressed that *“this is a true disservice in my opinion to pre-service teachers. They are not receiving the benefit of a live classroom.”*

S. believes that face-to-face instruction offers many opportunities to practice teaching behaviors; she notes that presentations to peers are key among those opportunities. In her opinion and experience, instant feedback and constructive assessments along with repetition build confidence in pre-service teachers. She stated, *“Frankly, I don’t see how on-line delivery comes anywhere close to the strength of that face-to-face experience.”*

K. sees feedback from face-to-face delivery as being immediate and of huge importance. whereas on-line feedback is delayed. S. finds that the written feedback in an on-line setting is a particular strength, in that the pre-service teacher can return to revisit the feedback as often as they feel necessary in order to *“work on correcting weaknesses.”* She does cite a downfall, in that the feedback is not based on a *“real experience, but at best based on a recorded or written experience.”*

K. sees reflection and class discussion as “invaluable” in teacher education programs, and finds it is *“something that is lost with discussion boards provided by on-line delivery.”* S. notes that one strength of on-line reflective activities is that pre-service teachers can express themselves “without fear or hesitation...,” since reflection is a personal and studied action. However, she notes that shared reflections offer the opportunity to learn from others through the immediate reaction of peers.

In moving from practice to independent teaching behaviors, K. noted that face-to-face courses offered both immediate feedback and opportunities to correct error throughout the process. Her question regarding on-line course delivery was, “How do you evaluate that?” She went on to explain that field experiences and internships offered through on-line mediums (such as videoing teaching episodes and using face-time style applications for conferencing) do not provide the evaluator with a full picture of what actually occurred in the teaching episode.

“You can’t see the whole classroom. You don’t know what is happening in each corner of the room, so how do you form an opinion of how the intern is reacting? How do you evaluate classroom management if you can’t see the class?”

S. stated that in her experience, “pre-service teachers coming from a face-to-face delivery fare better in moving from practice to independent behaviors than do those from on-line programs. Their experiences in their program classes have prepared them for the face-to-face reality of teaching children.” She also sees on-line course delivery as providing more “book knowledge” with limited practical knowledge in “such mundane things as pencil sharpening and passing out papers.”

Summary of key points – faculty

Both faculty members expressed the belief that face to face courses offered more opportunities for pre-service teachers to observe models. One faculty member noted that the interaction between pre-service teacher and peers, and pre-service teacher and instructor, provides encouragement, which both Bandura (1997) and Zimmerman (1996) identify as necessary to building a sense of self-efficacy. Both faculty members identified face to face course delivery as providing numerous opportunities to practice teaching behaviors; neither felt that on-line courses offered the same opportunities for practice, and one stated that on-line

course delivery was actually a disservice to pre-service teachers because they did not receive the benefits of practicing teaching behaviors in a “live” classroom.

The ability to receive immediate feedback was seen by faculty as a strength of face-to-face course delivery, although it was noted that written feedback offered through on-line courses did provide the opportunity for the pre-service teacher to revisit the feedback as often as needed. Bandura’s (1997) position is that feedback is an important characteristic of the process of building self-efficacy skills; in Zimmerman’s model (Zimmerman et. al., 1996) feedback is also seen as crucial to building self-efficacy. Again, both faculty members alluded to the ability to discuss and reflect with instructors and peers face to face was invaluable, and that on-line reflection did not provide the opportunity for pre-service teachers to learn from each other.

Both faculty members also noted that movement from practice to independent teaching behaviors was more difficult in an on-line environment. The faculty member who does a lot of field and internship supervision noted that experiences in the face to face teacher education programs provided better opportunity for pre-service teachers to be prepared to handle the “reality” of teaching children. The faculty member who does teach on-line courses expressed concern about evaluating pre-service teachers in field and internship experiences.

Both faculty members saw some strengths in on-line teacher education course delivery, with written feedback and written reflection identified as strengths of on-line course delivery, but overall both believed that face to face teacher education provided more opportunities for pre-service teachers to build teaching skills and self-efficacy beliefs.

Validation

The figure below illustrates the flow chart of validation procedures used.

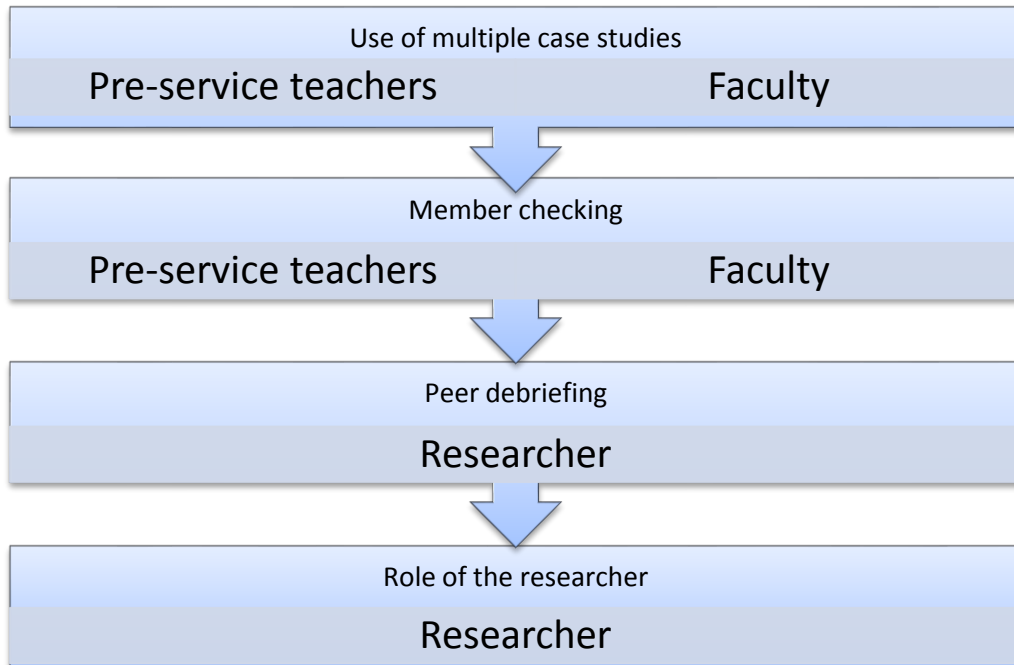


Figure 3: Validation procedures flow chart.

Pre-service teachers and faculty multiple cases: Multiple case studies were used in this study.

Pre-service teachers – member checking: Member checking followed transcription; each interviewee was provided a copy of the transcription and was given the option of contacting the researcher with any questions or comments. None of the interviewees had concerns regarding the content of the interviews.

Faculty – member checking: Member checking followed transcription; each interviewee was provided a copy of the transcription and was given the option of contacting the researcher with any questions or comments. Neither of the interviewees had concerns regarding the content of the interviews.

Peer debriefing: Creswell and Miller (2000) state that getting the assistance of a peer debriefer lends credibility to a study. In this study, the peer debriefing procedure was used

throughout the process of the study, with the debriefer challenging assumptions, probing biases, and asking questions regarding methods and interpretations.

Role of the researcher: Creswell and Miller (2000) suggest that a “role of the researcher” section provides the opportunity for the researcher to acknowledge and describe personal beliefs and biases so that the audience is aware of the position of the researcher. The debriefing questions outlined in Chapter III provide the framework for the researcher to reflect, and discussion takes place in Chapter V.

CHAPTER V

DISCUSSION

Discussion of findings

Zimmerman's (1996) model for building self-efficacy defines four distinct steps, which include observing models, practicing behavior with feedback, reflection, and performance of skills independently. Although Zimmerman (2013) states that mastery of the levels in sequence facilitates more effective learning, it is not necessary that the levels occur in exact sequence in order to build a sense of learner self-efficacy. Bandura (1997) describes the self-efficacy building process as comprised of vicarious experience (modeling), verbal persuasion (positive verbal feedback when practicing skills), and enactive mastery experience (performance of skills independently). In this study, all four levels of Zimmerman's model were addressed in the interview questions.

Although the quantitative phase of this study did not calculate statistically significant differences in measures of self-efficacy according to the TSES results, differences were apparent both in the TSES scores, both overall and within clusters, and in interview responses. In the quantitative phase, early childhood pre-service teachers had the highest overall mean, and the highest scores in each of the three clusters (student engagement, classroom management, and instructional strategies); the early childhood program is offered only through face-to-face course delivery. The mid-level pre-service teachers scored in the middle for both overall mean and in each of the three clusters; the mid-level program is offered face-to-face combined with on-line course delivery. The special education pre-service teachers, whose program is offered on-line, obtained the lowest mean scores overall as well as within clusters; one special education pre-service teacher scored considerably higher than the others in that program.

The question raised is whether the differences in scores on the TSES are a result of course delivery methods or some other variable not accounted for in this limited study. Information gathered in the interview process provided insight into the three programs' impact on the process of pre-service teachers building personal self-efficacy.

Zimmerman and Kitsantas (1996) proposed four levels to building self-efficacy: observation of models, practice with feedback, reflection, and independent behavior. Bandura (1997) also identified four levels for building efficacy: observation, enactive mastery, self-evaluation, and a sense of efficacy and agency. Interview responses indicated that both early childhood and mid-level pre-service teachers had numerous opportunities to observe modeling, both by instructors and peers. A variety of modeling practices took place in the face-to-face environment, including instructors modeling teaching strategies and models, instructors modeling thought processes by "thinking aloud," and instructors providing hands-on activities and examples of work products for pre-service teachers. These actions allowed pre-service teachers to observe competent models, and then to practice the modeled behavior. Both early childhood and mid-level pre-service teachers mentioned specific examples of modeling behavior.

Along with instructor modeling, peer modeling was another instance that early childhood and mid-level pre-service teachers had in common. Both groups brought up peer modeling as important to them in building confidence; modeling by peers allowed them to see mistakes others made, and to observe both good and bad practice. The lack of social cues present in modeling and interaction with peers is especially troubling in on-line course delivery for the special education pre-service teachers; special education teachers work with students who have social, emotional, and behavioral issues as well as learning challenges. A special education teacher must

be able to read, recognize, and utilize social cues provided by students in order to most effectively implement teaching strategies for those students.

Both early childhood and mid-level pre-service teachers also talked about feedback they received from both instructors and peers, often in the context of practice teaching in class. Both groups discussed how the feedback received from instructors built efficacy beliefs in that feedback was provided in a positive way, and allowed them to see personal growth. They valued feedback from peers because they had an appreciation for the different viewpoints of cohort members who noticed different things and again, offered positive feedback. It was also noted that having the opportunity to make mistakes in front of friends helped pre-service teachers feel more comfortable in their initial teaching episodes while in program classes.

Contrary to the experience with modeling and feedback had by the early childhood and mid-level cohorts, the special education pre-service teachers could not cite any specific examples of modeled behavior, with the exception of watching some videos. They did not have the opportunity to teach in front of peers, or to practice skills and strategies used in the special education classroom in the public schools. The first feedback they recalled was that received in their internship placements; they did not mention any form of feedback other than that, nor did they observe modeled behavior.

While Zimmerman (2013) specifically says that the steps do not need to be followed in order, he also says that more effective learning is facilitated by progressing in order through the steps. He does not specifically say what happens when two steps are left out completely. However, if following the steps in order facilitates effective learning, the idea might be put forth that leaving out two steps entirely, especially the first two steps, could be likened to asking a child to write a sentence before knowing letter sounds or words. Bandura's theory (1997) of self

efficacy also has observation and “enactive mastery” experiences as building blocks; like Zimmerman those are the first steps in building a sense of self efficacy.

Early childhood and mid-level pre-service teachers also made mention of other modeling behaviors by instructors that assisted them in building a sense of personal self efficacy. They noted that seeing instructors solve problems was encouraging, and that hearing instructors talk about potential pitfalls and challenges, and possible solutions, was reassuring to them. Not only was the teaching behavior modeled, but how to handle the unexpected was also part of the discussion. The modeling behaviors of how to deal with problems helped the pre-service teachers to know that problems could be solved by thinking them through.

The special education pre-service teachers had no opportunity to practice modeled teaching behaviors, which precluded any feedback. One pre-service teacher even noted that in internship, which was the first chance to watch a model and receive feedback on teaching, both modeling and feedback were limited by the fact that the intern was working with students separate from the classroom teacher, and therefore had only limited opportunities to watch a competent model. It was also mentioned that distance between campuses made observation of instructors an impossibility. It is crucial to the development of self-efficacy beliefs that pre-service teachers have the ability to observe proficient models within the classroom; this is especially important in programs with on-line delivery since opportunities to observe models is limited by the course delivery format.

When looking at the mean scores within the three clusters identified on the TSES (student engagement, classroom management, and instructional strategies) illustrated in Table 8, page 69, the special education pre-service teachers consistently scored the lowest on all three clusters. Reports of lack of opportunities to observe modeling, and to practice with feedback in the on-line

special education program is reflected in both the overall scores as well as the cluster scores. The scores of the pre-service teachers in the special education program were the lowest on all measures. Although not statistically significant, these scores do call into question the effectiveness of on-line course delivery for teacher education programs.

Bandura (1997) states that children in the classroom learn more from teachers with a high sense of personal efficacy as opposed to those who harbor self-doubts. High self-efficacy beliefs in teachers contribute to their view of difficult or struggling students; teachers with high self-efficacy view those students as teachable and see their difficulties and struggles as surmountable. This is a skill that is especially important for special education teachers, whose work is exclusively with struggling students. The question arises as to whether lack of modeling, lack of feedback from peers, lack of feedback from instructors until internship placements, and lack of ability to practice teaching skills and strategies results in a lower sense of self-efficacy among special education pre-service teachers.

All of the pre-service teachers, regardless of program, defined their progress through the levels of reflection as defined by Mackay & Tymon (2013) as a continuous process throughout the course of their programs. Most felt that it was not until internship placements that they really understood and were able to actively and intentionally reflect on their teaching. They related that their biggest fear going into the classroom as a teacher was the ability to “control” the class. Trying new teaching strategies during field and internship was something pre-service teachers were willing to do, but still the thought of control of the classroom was the foremost concern. Fear of student injury, noise that attracted negative attention from other teachers or administrators, and lack of control of student behavior were the primary focus points of reflection, with teaching behaviors taking a secondary position.

Those pre-service teachers who discussed reflection at Mackay and Tymon's Level 4 (Mackay & Tymon, 2013) did so in the context of the internship semester, often the second half of that semester. Pre-service teachers noticed a change in thinking and perspective; they were less concerned with behavior control and the opinion of the authority in the classroom, and more focused on student learning. Reflection became a means of thinking about student needs and how to improve teaching behaviors and skills, as well as a personal gauge of strengths and weaknesses; evaluation of personal growth during the internship experience resulted in higher self-efficacy beliefs, which Bandura (1997) states will increase persistence and willingness to try different strategies, contributing to further self-growth.

The pre-service teachers with the high and medium self-efficacy scores described the greatest change in their reflective processes, as well as recognizing the purpose for reflection. They noted a change in focus from self to students; reflection was a source of increased self-efficacy for those pre-service teachers as they recognized and documented personal growth in teaching skills. The low-scoring pre-service teachers did not specifically recognize any change in their reflective activities, although all pre-service teachers are required to reflect at various times during their coursework, and all interns have the same requirements for reflection during the internship semester. Those who scored low on the self-efficacy scale also did not note any progression through the reflection process.

One pre-service teacher described the program as being laid out in a progressive manner that followed Zimmerman's (1996) levels of building self-efficacy in sequence. In the teacher education program in this study, experiences are designed in such a way as to allow for these steps to be followed in sequence. Initial modeling by both instructors and peers is provided through course work; practice with feedback as well as numerous opportunities to reflect on

performance is provided through course work, which then extends into the field experience. Internship becomes the final phase in which skills are performed independently and self-efficacy beliefs increase. While this progression occurs in the face-to-face and the mixed delivery programs, the progression is not followed in the special education program. Modeling and practice with feedback are not a part of the on-line special education course rotation; special education pre-service teachers do not even begin to observe models or practice teaching behaviors until the internship semester – the last semester prior to graduation. Based on the TSES scores, it could be said that one semester of internship is not adequate time for special education pre-service teachers to establish a personal sense of self-efficacy.

Pre-service teachers in all three programs discussed the support they received from cohort members as important to their growth as teachers. Bandura (1997) describes this as “collective efficacy” wherein members of the group share mutual liking and affiliation, as well as a sense of shared purpose. The cohort system on this campus creates an environment wherein pre-service teachers can develop relationships with each other that provide mutual support and allow for opportunities to build self-efficacy through peer modeling, and positive peer feedback. Bandura (1997) notes that schools are made up of social systems, and he adds that the efficacy of a school is related to the efficacy beliefs of individual teachers within that school. The cohort system in this program allows for the development of Bandura’s “collective efficacy” (1997).

Both the early childhood and mid-level pre-service teachers noted that their respective cohorts provided support not only in the program, but that the relationship extended beyond the campus into group social activities such as eating together as a group or arranging a float trip. Personal life events such as engagements and weddings were celebrated by the group as well.

The special education pre-service teachers formed a support bond as well, but there were no references to extension beyond the classroom.

While identified as an “emergent” theme, the development of the theme of cohort strength through the interview process was not totally unexpected. The faculty members who teach in this program see the cohort system as one of the major strengths of this campus’ program, and design and implement specific activities to encourage the growth of the cohort relationship. Senior pre-service teachers welcome incoming junior pre-service teachers with a “back to school” picnic at the start of the fall semester; seniors create a program which is presented to faculty and juniors at the end of the fall semester, which includes a lunch provided by the juniors to “send off” the senior pre-service teachers as they enter their internship semester. Seminars often include social time and refreshments as part of the day’s agenda; faculty is invited to, and attends some group functions.

Bandura (1997) views schools as interactive social systems in which teachers operate in a collective manner. Teachers in efficacious schools set high standards for academic achievement, see students as capable of meeting those high standards, and reward behaviors that promote academic achievement. The cohort systems present at this satellite campus function as social systems for the pre-service teachers, and allow them to build a common sense of efficacy. Bandura sees peers as a major source for development of self-efficacy; the social influence of peers is viewed as bi-directional, where peers influence the direction of efficacy development and personal self-efficacy in part determines choice of peers (Bandura, 1997). The early childhood and mid-level pre-service teachers built a social system that extended beyond the classroom, and valued the support and encouragement provided by their peers. This cohort system directly impacts the development of self-efficacy beliefs (Bandura, 1997). The special

education pre-service teachers did not seem to build this same sense of shared experience and efficacy, instead viewing each other more as a means to get help to get through the program.

A second theme identified as “emergent” was relationships with faculty, again not a totally unexpected theme. Lumpkin (2007) identified teacher behaviors that lead to positive teacher-learner relationships, including setting high standards, creating a student-centered classroom, and providing both emotional and academic support for students, among others. In the interviews with pre-service teachers they noted the elements of caring, supportive faculty who set high standards and believed the pre-service teachers could accomplish those goals, and working within an environment of trust. Both early childhood and mid-level pre-service teachers noted that relationships with faculty helped them to feel more successful, to overcome self-doubts, and made them feel that they could achieve the high standards set for them. The special education pre-service teachers noted that even on-line instructors established good lines of communication and provided individual assistance. The ability of the special education pre-service teachers to establish relationships with off-campus faculty was limited by physical distance; however they were positive about the communication that was established with those faculty members.

Faculty members at this campus consciously work to provide opportunities for these relationships and bonds to develop. Effort to attend group events such as weddings, baby and bridal showers, and on occasion funerals is an attempt by faculty to demonstrate caring and concern for pre-service teachers beyond the classroom. In the past, money has been provided to pre-service teachers for gas or to attend lunch meetings when the pre-service teacher has not been able to afford it. Pre-service teachers who experience life issues that interfere with their

abilities to complete course work in a timely manner or to attend class are worked with on an individual basis to allow the pre-service teacher to successfully move through the program.

Consideration needs to be given to the high TSES score for the special education pre-service teacher. When looking at the aggregate program scores, the special education program mean score was 31 points lower than the early childhood program score and 15 points lower than the mid-level program score. There was a 60 and 36 point difference between the special education program, and the early childhood and mid-level programs respectively. This occurred even with the high special education score 73 points higher than the middle special education score. The high score can be explained by the personal life situation of the specific pre-service teacher. She has a daughter who is five years old who has been diagnosed with autism. The pre-service teacher has, since her daughter's diagnosis at the age of three, been extremely involved with her daughter's pre-school education as well as other special services (speech therapy, occupational therapy) that she has provided for her daughter. She is conversant with the protocol of placing a child in special education, and has been a strong advocate for her daughter. She has spent a great deal of time researching autism, and a variety of therapies that have been used to work with children with autism. Her long range goal is to work in a program that provides services to special needs children and their families, after gaining some personal experience in the classroom.

If this pre-service teacher's score is not included, the mean difference between the early childhood TSES score and the special education TSES score doubles to a 60 point difference. The sample size in this study is too small to establish whether or not that difference is statistically significant, but the difference is large enough to be noticeable. There are a variety of components to self-efficacy, with course delivery methods only being one, but looking at the

scores raises the question as to whether on-line course delivery in the special education program provides the best means of developing self-efficacy in pre-service teachers. On the surface it would appear that the face-to-face program has the highest efficacy scores, the mixed course delivery program has the next highest scores, and the on-line delivery program has substantially the lowest scores.

This difference may be due to program design as well as program delivery. While the early childhood and mid-level programs are designed to build teaching skills as well as efficacy beliefs, and course rotations and course blocks (courses which must be taken together) are designed both for mastery of content as well as gradual scaffolding of learning, the special education program is designed and delivered by a different department within the college. It is possible that program design for special education pre-service teachers has a different basis than the early childhood and mid-level programs.

Zimmerman (2013) notes that mastery of the levels of building self-efficacy in sequence allows for easier and more effective learning, but in this study the special education pre-service teachers did not have the opportunity for the first two steps in the model, and did score lower on the self-efficacy scale. Causation cannot be assumed from this relationship, but it does raise the question as to whether on-line course delivery in teacher education provides the means for pre-service teachers to build self-efficacy skills adequate for performing teaching behaviors in field and internship experiences. The pre-service teacher who scored highest on the TSES has personal experience raising a special needs child of her own, and scored more than 70 points higher than the middle score on the TSES. The question becomes whether her personal life situation has contributed to her perceptions of personal self-efficacy in spite of or in concert with the special education teacher education program.

Pre-service teachers also made note of the fact that face to face programs provided opportunities for cohort support and establishing relationships with instructors. These two emergent themes were not as stressed by the special education pre-service teachers. Again, causation cannot be assumed. Pre-service teachers commented that the support provided by cohort members as well as that provided by faculty were instrumental in building personal efficacy beliefs.

Generally, pre-service teachers commented that on-line instruction versus face to face instruction satisfaction was a function of both personal learning style and life situations, with the ability to self-motivate being a significant factor in success in on-line courses.

Faculty members, regardless of their experience with teaching in an on-line environment, saw face to face course delivery as providing the opportunities for pre-service teachers to experience all levels identified by Bandura (1997) and Zimmerman (1996) for building self-efficacy beliefs. In particular, they noted lack of modeling opportunities as a major drawback of on line teacher education course delivery. Both Bandura (1997) and Zimmerman (1996) see observation of competent models as the first step in building teacher efficacy. Additionally, the opportunity to practice teaching behaviors was viewed as something that could not be provided in an on-line course delivery environment. Again, both Bandura (1997) and Zimmerman(1996) identify being able to practice behaviors, with immediate feedback, as a necessary component in building self-efficacy. Even with the ability to record and view teaching episodes, on-line courses precluded the chance for the supervisor to offer immediate feedback. Both faculty members did note that the written reflective activities in on-line courses was a positive factor, allowing for deeper reflection and time to consider and think about teaching behaviors and

episodes. They did note that the transition from practice with supervision to independent practice seemed to be more difficult for those students in the on-line special education program.

In Windes and Lesht's study (Windes & Lesht, 2014), lost interaction with students was noted by faculty members as one of the major challenges of teaching on line. Susan Hall (Hall, 2007) found that faculty noted lack of community and lack of modeling as major negatives in on-line course delivery. She also found that lack of instructor/peer interaction was a negative aspect of on-line teacher education instruction. Pre-service teachers also were able to cite examples of all four levels being incorporated into the face to face program delivery, with the special education on-line course delivery not providing opportunities for the first two levels.

Validation

Pre-service teachers and faculty multiple cases: Multiple case studies were used in this study. Berg (2009) identifies multiple cases as intended to broaden understanding and insight. Yin (2014) states that findings from multiple cases are strengthened compared to single case studies alone.

Member checking: Hatch (2002) describes member checking as a means to verify information and interpretations generated by the researcher. The use of member checking to confirm accuracy of transcriptions assisted in presenting interviewee perceptions in a balanced manner. Verbatim transcriptions of interviews were provided to participants, as well as a brief summarization of key points noted by the researcher, along with contact information of the researcher to voice any questions or concerns. None were noted by either pre-service teachers or faculty.

Role of the researcher: Creswell and Miller (2000) suggest that a "role of the researcher" section provides the opportunity for the researcher to acknowledge and describe personal beliefs

and biases so that the audience is aware of the position of the researcher. The debriefing questions outlined in Chapter III provide the framework for the researcher to reflect.

As an instructor in the program who had the pre-service teachers in one or more classes, the pre-service teachers were aware of the researcher's personal position regarding on-line teacher education. Although this would not have influenced interviewee responses on the factual recitation of what occurred in program classes, this awareness may have influenced responses that elicited judgments.

During the time period in which interviews took place, the researcher did not have influence over any grades earned by the interviewees, so currying favor would have gained no personal advantage for the interviewee. The researcher has taught both on-line and face to face courses, and as a result has seen personal viewpoints either confirmed or denied; an attempt was made through crafting of the *a priori* interview question to maintain neutral phrasing so as not to influence responses.

The researcher sees some courses as lending themselves to on-line delivery in the teacher education program, although in a limited fashion. The preponderance of course work needs the face-to-face instruction in order to provide the framework for building self-efficacy.

Peer debriefing: Creswell and Miller (2000) state that getting the assistance of a peer debriefer lends credibility to a study. In this study, the peer debriefing procedure was used throughout the process of the study, with the debriefer challenging assumptions, probing biases, and asking questions regarding methods and interpretations.

One unexpected outcome during the research was the nature of one of the emergent themes discovered in the data coding process. "Knowing faculty" was a surprise in that faculty at this satellite campus consciously works to build positive relationships with students, but it was

not known how important this effort is to the individual students. Over half of the interviewees identified the relationship between faculty and pre-service teacher as one facet of building self-efficacy beliefs.

Another unexpected revelation to the researcher was the lack of opportunity for observing competent models and being able to practice with feedback for the special education pre-service teachers. The assumption was made that because the courses were offered on-line only, course design would have provided observation hours or other opportunities to observe classroom special education teachers in the act of teaching and working with special needs students, and to practice teaching behaviors in the methods class using video or other electronic means.

A third unexpected response came from faculty interviews. It was assumed prior to the interviews that selecting two faculty members from opposite ends of the spectrum in their opinions regarding course delivery would result in two opposing viewpoints in the interviews. However, the faculty member who teaches on-line courses had some very negative views of on-line teacher education, while the faculty member who views on-line teacher education courses negatively had some positive comments regarding on-line course delivery.

No ethical dilemmas presented during the course of the research. Confidentiality was easily maintained by keeping working documents locked at the office or stored at the personal residence of the researcher. No interviewees expressed any level of discomfort with the interview process, and none withdrew from the study.

Limitations of the study

There are limitations on the results of this research study, including homogeneity of the sample, size of sample, and role of the researcher.

The target population of this study consisted of students enrolled in a teacher education program located on a satellite campus. This population is homogeneous in racial/ethnic makeup, and the campus is located in a rural area with a county population of approximately 41,000 and a municipal population of approximately 12,000. Results may not be generalizable to a more diverse or larger population.

At both the quantitative and qualitative level of this study, sample sizes were small. In phase 1, the quantitative phase, the initial sample size was 30, with 17 responding to the questionnaire; and in phase 2, the qualitative phase, the nested sample size for interviews was 9, and the faculty interviews numbered two. The small number of participants in each phase of the research project makes generalizability problematic, in that the small sample size results in less possibility of the sample being representative of the larger population.

Related to the question of sample size, homogeneity of the sample is also a limitation of the study. The ages of pre-service teacher interviewees (largely non-traditional students), the demographics (all white with one exception), and other characteristics of the sample create serious limitations on the generalizability of results to other populations. Other characteristics include the fact that the sample population comes from a satellite campus of a state university, precluding the ability to generalize to main campus populations; that all members of the sample population were enrolled in a cohort system, so that familiarity with faculty and classmates was common within programs; and that the geographic location of the study (rural, middle to low socioeconomic status, physically isolated with no large cities or interstate available within at least two hours travel, county and adjacent counties less than five percent diverse population) is not characteristic of the larger population.

The small size of the teacher education program at the satellite campus is also a limitation in generalization for this study. Combined with participant demographics, the relatively small size of the program as well as the cohorts within it are not representative of participant demographics or program sizes in other teacher education populations.

The short duration of the research and the lack of triangulated data provide additional limitations. The role of the researcher as both researcher and as faculty member in the studied programs may have influenced outcomes at several levels: pre-service teacher participation in phase 1, willingness to participate in phase 2 interviews, honesty and forthrightness on the part of interviewees, and interpretation of data based on the personal beliefs of the researcher.

This study was limited to exploring views of pre-service teachers regarding personal perceptions of self-efficacy. It does not address the effectiveness of meeting teacher education standards as defined by InTASC or any other measure, so is not generalizable to a measure of effectiveness of any particular course delivery method.

Additionally, issues arose due to attempting to collect and analyze data in an area where there is a relatively limited amount of research and literature documenting differing outcomes based on course delivery methods in teacher education programs specifically.

The quantitative portion of this study was limited in that it was used for the main purpose of identifying individuals for the qualitative portion of the study. As a result, quantitative data may have been lacking that would have supported or refuted the qualitative conclusions.

Suggestions for further research

Although there is considerable research on on-line course delivery methods, there is almost no research on course delivery methods within specific program/degree areas. A large portion of the research discovered in this study was either on undergraduate general education

course requirements, or on business programs. In order to fully evaluate the impact of course delivery methods within specific degree programs, those programs need research which deals directly with the desired outcomes for that specific program. Since each degree program adheres to specific standards, outcomes need to be viewed in terms of success at meeting those specific standards, with course delivery methods being one aspect of what is investigated.

Within teacher education programs, most of the research located dealt specifically with graduate programs. While this information may be valuable for evaluating on-line course delivery for graduate students, it is not generalizable to the undergraduate population. Demographics for graduate versus undergraduate students differ considerably, in terms of population age, location, other life situations such as employment and family obligations, levels of dedication and motivation, and levels of pre-existing background knowledge. Research that specifically addresses issues and concerns in undergraduate teacher education programs as relates to course delivery methods would provide a more compelling and valid picture of how course delivery methods impact development of teaching skills, including efficacy.

Teacher education programs vary widely by institution and by state. In order to more effectively evaluate programs, research endeavors need to address a variety of variables within the realm of teacher education. State institutions versus private institutions, four year programs versus five year programs, large programs versus small programs, urban versus rural programs, levels of faculty preparation, and differences within programs based on licensure levels are all variables that have an effect on the design and implementation of programs regardless of course delivery methods.

Changes in state licensure laws may make a difference as well; the advent of new programs designed to meet new licensure standards will require some modification over time as

strengths and weaknesses of those new programs is discovered. Testing protocols for licensure have also changed with new tests being implemented and new cutoff scores established. How these changes in programs and testing impact pre-service teachers' development of efficacy is another question for further research.

Additionally, changes in state funding for state institutions may determine in part how programs and courses are delivered; decreased funds availability may result in more on-line delivery if it is seen as a cheaper alternative to face-to-face instruction (less need for buildings, maintenance, and larger class sizes as cost reduction measures). A long term study on how outside economic forces impact course delivery methods and undergraduate student outcomes would help to provide some answers to those questions.

Outcomes need to be more clearly defined in research design, questions, and results. It appears that a large portion of research claiming no significant outcome differences between on-line and face-to-face instruction is based on grades on weekly quizzes, or undergraduate students' satisfaction with course organization and/or materials. While this information is valuable in defining certain specific outcomes, weekly quiz results or satisfaction with course organization do not measure outcomes of programs related to success or satisfaction in profession choice. A pre-service teacher who scores A's on every classroom quiz and test is not necessarily a high quality teacher in the public school classroom, and vice versa; outcomes need to be more aligned with the requirements of performance levels after completion of the degree program.

Additionally, there is a need for research that addresses teacher education programs that is generalizable to the larger population. Most research that was located occurred in one specific program with clearly defined and sometimes narrow demographics in the research sample

population. Research that addresses one specific outcome that has a greater level of generalizability will provide more adequate information used for program design and implementation in a wider variety of settings.

Conclusion

Teacher education programs have the responsibility to utilize best practices in order to prepare pre-service teachers to enter the education field and to create positive outcomes for their students. In order to effectively do this, the ability to provide pre-service teachers with the opportunity to build both teaching skills and self-efficacy beliefs are necessary. Bandura (1997) identifies beliefs that struggling students are teachable, that family support can be enlisted in helping students learn, that devoting time to guidance and praise of students, and that positive rather than punitive classroom management are signs of a teacher with high self-efficacy. Building that self-efficacy in pre-service teachers through a concerted effort to provide a structure for doing so can result in higher levels of teaching skills as well as better learning outcomes for classroom students.

Discussion on the comparative merits of on-line versus face-to-face instruction have, in the past, revolved around cost differences, convenience for students and faculty, and technological capabilities. Only limited attention has been paid to learner outcomes; what literature there is on learner outcomes has focused on narrow assessment measures in limited numbers of degree programs. There is a need to examine both on-line and face-to-face instruction at the post-secondary undergraduate level to establish bases for comparison of outcomes based on degree programs. What is appropriate in one degree program may not be appropriate in another, depending on the nature of the training and the preparation needs of the undergraduate population.

This research has been a study to hear the voices of a small number of teacher education undergraduate students outlining their experiences with course delivery methods. Based on Bandura's theory of self-efficacy (1997) and Zimmerman's model for building self efficacy (1996), in order for teachers to be successful in the classroom, they themselves must be offered opportunities to build personal self-efficacy during their undergraduate preparation. Those opportunities should be in the form of model observation, practice of teaching behaviors with feedback, reflection, and independent performance of teaching behaviors. This small study opens the question as to whether on-line course delivery in teacher education programs can offer those opportunities; only further research can provide answers.

If the goal of post-secondary education is to graduate individuals with all of the skills and competencies to perform at the highest levels in their chosen fields, it will be necessary to conduct further research into the best way to structure degree programs for maximum achievement possibilities. Policy makers in higher education must be willing to listen to the voices of their "customers," the students within those schools, in order to design and implement programs that allow each individual to develop to his or her fullest potential.

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APPENDIX A – TEACHER’S SENSE OF EFFICACY SCALE

Teachers’ Sense of Efficacy Scale¹ (long form)

Teacher Beliefs

How much can you do?

Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.

Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.		Nothing	Very Little	Some Influence	Quite A Bit	A Great				
1.	How much can you do to get through to the most difficult students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2.	How much can you do to help your students think critically?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3.	How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4.	How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5.	To what extent can you make your expectations clear about student behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6.	How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7.	How well can you respond to difficult questions from your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8.	How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9.	How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10.	How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11.	To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12.	How much can you do to foster student creativity?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
13.	How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
14.	How much can you do to improve the understanding of a student who is failing?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15.	How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16.	How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17.	How much can you do to adjust your lessons to the proper level for individual students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
18.	How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
19.	How well can you keep a few problem students from ruining an entire lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
20.	To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21.	How well can you respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
22.	How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
23.	How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24.	How well can you provide appropriate challenges for very capable students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Directions for Scoring the Teachers' Sense of Efficacy Scale¹

Developers: Megan Tschannen-Moran, College of William and Mary Anita Woolfolk Hoy, the Ohio State University.

Construct Validity

For information the construct validity of the Teachers' Sense of Teacher efficacy Scale, see:

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education*, 17, 783-805.

Factor Analysis

It is important to conduct a factor analysis to determine how your participants respond to the questions. We have consistently found three moderately correlated factors: *Efficacy in Student Engagement*, *Efficacy in Instructional Practices*, and *Efficacy in Classroom Management*, but at times the make up of the scales varies slightly. With preservice teachers we recommend that the full 24-item scale (or 12-item short form) be used, because the factor structure often is less distinct for these respondents.

Subscale Scores

To determine the *Efficacy in Student Engagement*, *Efficacy in Instructional Practices*, and *Efficacy in Classroom Management* subscale scores, we compute unweighted means of the items that load on each factor. Generally these groupings are:

Long Form

<i>Efficacy in Student Engagement:</i>	Items 1, 2, 4, 6, 9, 12, 14, 22
<i>Efficacy in Instructional Strategies:</i>	Items 7, 10, 11, 17, 18, 20, 23, 24
<i>Efficacy in Classroom Management:</i>	Items 3, 5, 8, 13, 15, 16, 19, 21

Short Form

Efficacy in Student Engagement:

Items 2, 3, 4, 11

Efficacy in Instructional Strategies:

Items 5, 9, 10, 12

Efficacy in Classroom Management:

Items 1, 6, 7, 8

Reliabilities

In Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education*, 17, 783-805, the following were found:

	Long Form			Short Form		
	Mean	SD	alpha	Mean	SD	alpha
OSTES	7.1	.94	.94	7.1	.98	.90
<i>Engagement</i>	7.3	1.1	.87	7.2	1.2	.81
<i>Instruction</i>	7.3	1.1	.91	7.3	1.2	.86
<i>Management</i>	6.7	1.1	.90	6.7	1.2	.86

¹ Because this instrument was developed at the Ohio State University, it is sometimes referred to as the *Ohio State Teacher Efficacy Scale*. We prefer the name, *Teachers' Sense of Efficacy Scale*.



Anita Woolfolk Hoy, Ph.D.

Professor

Psychological Studies in
Education

Dear Susan Anselm:

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research. A copy of both the long and short forms of the instrument as well as scoring instructions can be found at:

<http://www.coe.ohio-state.edu/ahoy/researchinstruments.htm>

Best wishes in your work,

Anita Woolfolk Hoy, Ph.D.
Professor

APPENDIX B

Additional demographic questions to be added to *Teachers' Sense of Efficacy Scale*:

Program enrollment: early childhood, early childhood/special ed, mid-level

Marital status

children living at home

Age

Commute distance one way to campus – miles

Commute distance one way to campus – time

hours of work outside of school

APPENDIX C

This study is being conducted by Sue Anselm, graduate student in the Department of Curriculum and Instruction at the University of Arkansas-Fayetteville in order to better understand self-efficacy development among pre-service teachers as it relates to course delivery methods. This research will help to better understand how course delivery methods (on-line, face-to-face) help pre-service teachers to gain a sense of self-efficacy.

I would greatly appreciate your completing this questionnaire through Survey Monkey. Click on the link to take you to the survey [Survey Monkey address](#). This questionnaire should take approximately 30 minutes to complete. Since the validity of the results depend on obtaining a high response rate, your participation is crucial to the success of this study. The data collection process will focus on student perceptions of effectiveness of different course delivery methods, and this data collection process will take approximately one month to complete. At the conclusion of the data collection process, individuals will be selected for in-depth interviews.

Your completion of the survey indicates your consent to participate in this study. Please be assured that your responses will be kept confidential to the extent allowed by law and University of Arkansas policy. As soon as I receive your completed survey, data analysis will take place; all analysis results will be stored for a period no longer than three years as required by federal and state regulations. At the conclusion of this time period, all data results will be destroyed. If the results of this study were to be written for publication, no identifying information will be used. You will have the right to withdraw from the study at any time.

The potential benefits to you from participating in the study are increased knowledge among teacher education program developers/designers to ensure that programs meet student needs. The potential benefits to science and humanity that may result from this study is the increased understanding of how teacher education students perceive personal development as a function of course delivery methods. This study will provide information to program developers and designers to help them make informed decisions on effective methods to provide course delivery to students. Respondents will have the opportunity to receive feedback regarding the study results by contacting me and requesting study results.

Contact information.

If you have any questions about this study, you can contact the person(s) below:

Investigator

Sue Anselm, Ph.D. candidate

Advisor

Dr. Kathleen Collins, Chair

This study has been reviewed and approved by The University of Arkansas-Fayetteville's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical

obligations required by federal law and University policies. If you have questions or concerns regarding this study please contact the Investigator or Advisor or IRB (IRB, Attn: Compliance Officer, ADMN 210, 575-2208).

I hope that you will be able to participate in this study.

Sincerely,

Sue Anselm

I volunteer to participate in a research project conducted by Susan Anselm from the University of Arkansas. I understand that this project is designed to gather information about pre-service teachers' perceptions of self-efficacy based on course delivery methods.

I understand that my participation is voluntary and that I can withdraw from participation at any time. If I feel uncomfortable at any time during the interview session, I have the right to decline to answer any question or to terminate the interview. I understand that I will not be paid for my participation.

Participation involves being interviewed by Susan Anselm. The interview will last approximately one hour. I understand that the interview will be digitally recorded and that a written transcription will be made and I consent to use of this material as part of the research study. I understand that the researcher will not identify me by name in any reports and that my confidentiality will be maintained to the extent allowed by law and university policy. I understand that records will be kept for a minimum of three years after the completion of the research as per federal and state regulations.

I understand that this research study has been reviewed and approved by the Institutional Review Board (IRB) for Studies Involving Human Subjects at the University of Arkansas. For research problems or questions, the IRB may be contacted through Iroshi Windwalker, 109 MLKG Building, Fayetteville, AR 72701 (phone 497-575-2208).

I understand the explanation given to me about the purpose of this research study, and have had my questions answered to my satisfaction. I voluntarily agree to participate in this study, and have been given a copy of this consent form.

Signature

Date

Printed Name

Signature of the researcher

For further information, please contact
Susan Anselm

[REDACTED]

Advisor

Dr. Tom Smith, Advisor

[REDACTED]

APPENDIX D



UNIVERSITY OF
ARKANSAS

Office of Research Compliance
Institutional Review Board

July 10, 2014

MEMORANDUM

TO: Susan Anselm
Tom Smith

FROM: Ro Windwalker
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 14-06-775

Protocol Title: *Course Delivery Methods and Perceptions of Self-Efficacy in Pre-Service Teachers*

Review Type: ☐ EXEMPT ☒ EXPEDITED ☐ FULL IRB

Approved Project Period: Start Date: 07/10/2014 Expiration Date: 07/09/2015

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<http://vpred.uark.edu/210.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

This protocol has been approved for 30 participants. If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior* to implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or irb@uark.edu.

210 Administration Building • 1 University of Arkansas • Fayetteville, AR 72701
Voice (479) 575-2208 • Fax (479) 575-3846 • Email irb@uark.edu

The University of Arkansas is an equal opportunity/affirmative action institution.



Office of Research Compliance
Institutional Review Board

July 8, 2015

MEMORANDUM

TO: Susan Anselm
Tom Smith

FROM: Ro Windwalker
IRB Coordinator

RE: PROJECT CONTINUATION

IRB Protocol #: 14-06-775

Protocol Title: *Course Delivery Methods and Perceptions of Self-Efficacy in Pre-Service Teachers*

Review Type: ☐ EXEMPT ☒ EXPEDITED ☐ FULL IRB

Previous Approval Period: Start Date: 07/10/2014 Expiration Date: 07/09/2015

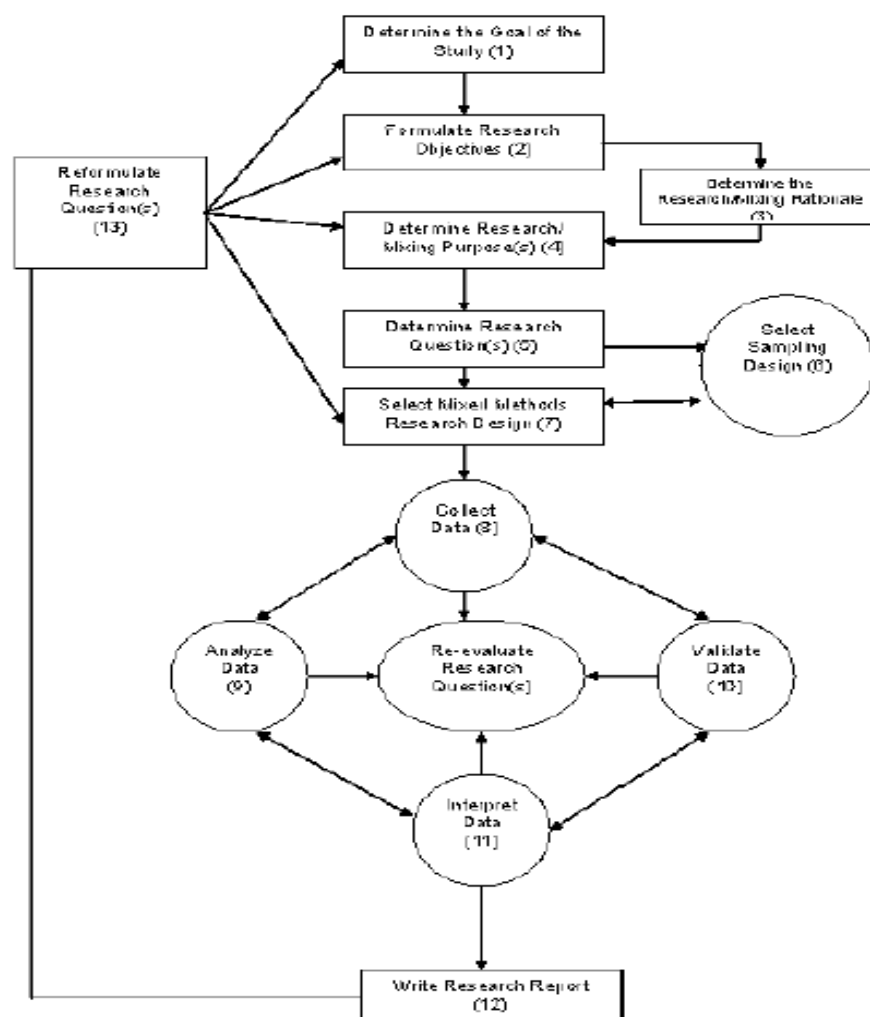
New Expiration Date: 07/09/2016

Your request to extend the referenced protocol has been approved by the IRB. If at the end of this period you wish to continue the project, you must submit a request using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. Failure to obtain approval for a continuation on or prior to this new expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

This protocol has been approved for 30 total participants. If you wish to make any modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or irb@uark.edu.

Figure 4
Mixed Method Research Model
from
Collins, Onwuegbuzie, and Sutton (2006)



TIME LINE								
Task	Jul- Aug 14	Sep- Oct 14	Nov- Dec 14	Jan- Feb 15	Mar- Apr 15	Jun- Dec 15	Jan - Mar 16	Mar- Apr 16
Submit proposal, approval	XXXX							
IRB submit, approval	XXXX							
Launch questionnaire	XXXXXXXX							
Analyze data	XXXXXXXXXX							
Conduct interviews	XXXXXXXXXXXXX							
Write	XXXXXXXXXXXXX							
Revise	XXXXXXXXXXXXX							
Defense	x							